The Iron A

A Review of the Hardware and Metal Trades.

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RAPID TRANSIT IN NEW YORK.

The Gilbert Elevated Railway.

The elevated railroad projected by Dr. Rufus disappointment, has at present a good prospect of completion. The bill incorporating the Gilbert Elevated Railway Company was passed by the legislature last winter, and a commission appointed to determine the route of the road rendered their decision on the 26th of December last. The route as thus determined begins the terminus of the New York and Boston Railroad-and extends down Ninth avenue to Eighth avenue, and through it to Fifty-third street; thence to Sixth avenue, and through it to Fourth street; thence through South Fifth avenue and West Broadway to Chambers street; thence to Bowling Green, and upward through by saying that the condition of the question Beaver, Pearl, and other streets to Second avenue., through which it will continue to and

were pending, negotiations were carried on was so firmly founded on truisms that it really with the New York and Boston Railway Com- needed very little argument in its support. He

pany, who have finished the grading of the western extremity of their road to the Harlem River. The latter company having a charter permitting them to throw a bridge over the Harlem River, were in need of some means of bringing their passengers into the heart of the city, and the negotiations with the Gilbert Elevated Railway Com pany resulted in an arrangement in which the New York and Boston Railway Company have agreed to render assistance in the constrctuion of the Gilbert road. The latter company have therefore at once proceeded to push their project, and have elected their directors for the current year. The decision of the commis sion removing the principal obstacle to the construction of the road, the company has brought together thirty persons, who, as stated by the president, have agreed to furnish the necessary funds to build the road, and work is to be at once commenced. Negotiations are pending with six or seven iron companies, and the president informs us that a contract will probably be awarded within ten days.

The railway proper is to be located immediately over the center of the streets through which it passes, and the structure is to rest upon wrought iron columns 12 inches in diameter, and placed on both sides of the way, the columns in each row being 66 feet 8 inches apart, except at the crossings. This will give four columns for each block sboye Fourteenth street. The columns rest in cast from shoes set in masonry or concrete, and support the arched wrought iron trusses which span the street. The horizontal heam which constitutes

ened from below by segmental supporting used to filuminate cities, and the great noise arches, or equivalent devices bearing against truss to truss, and transverse beams rest upon the lower flanges of the girders connecting them with each other, and upon these rest the beams to which the ties are affixed. The genbridges resting on trusses, and is, therefore, similar to that of the Albany bridge over the Hudson River, which is frequently required to support a weight of two heavy trains and two 50 ton engines at points where the interval bridged is 187 feet.

The telegraph wires are supported by devices for that purpose fixed above the arches, and the street lamps are supported by the columns ; all poles and posts in the streets are thus dis-The trains will be hidden from

The estimated cost of the road is \$700,000 per 26,000 tons of iron will be required per mile.

Steel rails will be employed of the ordinary T section, and trains arriving from the East or case of the burning of the hippodrome, in ity of the fire. West will be run into the city directly upon the Fourteenth street, there were several points

will be used. It is proposed to have cars follow one another at intervals of five minutes on each of the two tracks, on both sides of the city. Our illustration gives a perspective view R. Gilbert, nine years ago, after much labor and of the railway as it will appear when in opera-

The Fire Risk of Steam.

On Friday evening a meeting of the Polytechnic Branch of the American Institute was held in Hall 24, Cooper Institute, to consider at the upper end of the island near High Bridge the question of the danger of conflagration resulting from the presence of superheated steam in pipes, when contact with woodwork is per-One Hundred and Tenth street; thence to mitted. The subject was discussed from the platform by Professor P. H. Van Der Weyde and Mr. Norman Wiard, with illustrative experiments.

Professor Van Der Weyde opened his remarks was at the present time the same as it had been when it was first introduced to the public. The along Harlem River to the point of beginning. theory of superheated steam had not been satis-While the deliberations of the commission factorily proven by any one, while its opposite

ashpans give rise to the generation of unburned at which various kinds of wood would ignite. hydro-carbonic gases and carbonic oxide, which may fill the boiler room, take fire, and so ignite points not bearing directly on the subject under the woodwork.

The professor here attached a rubber tube to the chandelier, and then to a drop light, which he ignited, continuing: "Now, if the door of the furnace is closed for a time, and then suddenly opened; there is seen within a blue flame, different from the ordinary yellow fiame caused by the burning of coal or wood." This assertion he illustrated with the drop light by closing and opening the draught under the glass chimney which enclosed the flames. When the current of air was shut off the gas (carbonie oxide) was formed, and mounting rapidly upward, caused a higher and distinct flame at the top of the chimney. In connection with a furnace the damper was in the flue, and was supposed to be closed. The gas then might pour out of the open door and take fire; or if the door was closed, the fire banked and the damper open, it might burn at a great distance from the furnace in a flue.

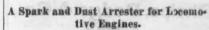
elevated railway. For local traffic lighter cars overlooked by Mr. Wiard, viz.: That the bank- which needed, most of all, to be investigated ing of fires or the shutting of flues or that at the present time—the points of temperature

debate, the meeting adjourned.

Relative Value of Drilled and Punched Boiler Plates.

A committee of the American Railway Master Mechanics' Association some time ago reported to that body the result of a series of experiments that present some curious points. The tests applied to the unriveted plate were in favor of drilling, the mean of three experi-ments, with a plate 1% inch. by 1-16 inch, and a % inch hole punched through the middle, gave 18:485 lbs. as breaking strain, and 17:1 tons for the unit strain on plate per square inch. Under the same conditions the drilled plate gave 17.645 lbs. as breaking strain, and 22.4 tons as unit strain. It should be stated that the strength of the drilled plate was considerably less than the entire plate, the former giving 23.4 tons as against 26.7. This shows that the as-Mr. Wiard then took the floor in support of sumption that, in a drilled joint, the spaces be-

strength" 54 per cent. The drilled plate gave 16.342 or 50 per cent. These results are so different from the opinions of practical men that it makes apparent the necessity of a thorough series of experiments to settle definitely the relative values of these two methods of forming rivet holes.



It is claimed that the desideratum so long sought for, namely, a practical spark and dust arrester on locomotives, has at last been re-alized. The invention is merely a curved smoke stack, attached as ordinary smoke stacks are, the mouth running backward toward the center of the locomotive. Within, near the enlargement at the upper curve, is placed a wire screen at an angle of about forty-five degrees with the direction of the smoke, and the other screen is placed over the immediate outlet. 1

Just below the first screen a perforated steam stack is run horizontally through the smoke stack, connected with the boiler by a valve pipe under the control of the engine driver. As the refuse matter from the furnace

passes through the stack, it is moistened by the fine spray ejected from the perforationss, thus deadening the particles and increasing their weight,

Striking at the inclined augle named above against the first screen, the particles are prevented from passing through and fall to the ground, whence, through the natural motion of the engine they are directed by a tube to beneath the boiler, and thrown upon the track in a moist and

consequently harmless state.

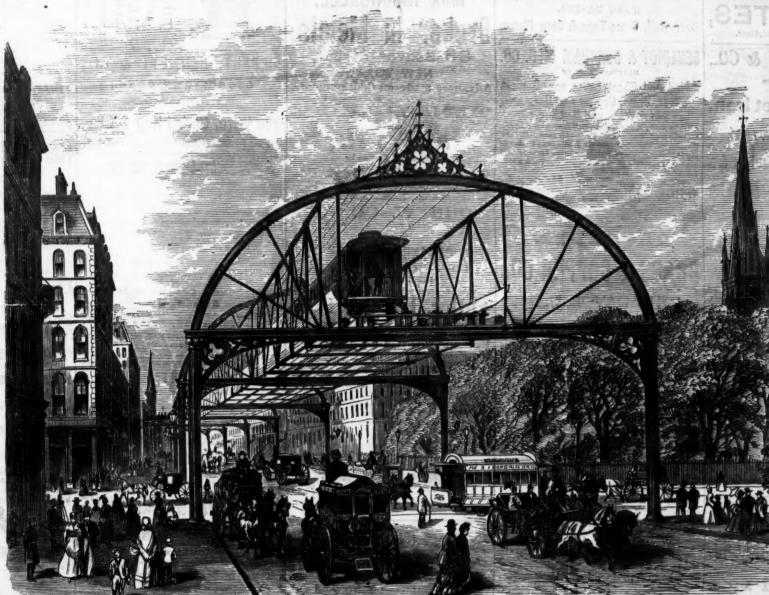
The advantage claimed for the curved stack is not only the prevention of dust and cinders upon the train, but the avoidance of damage by fires along the track. The latter object appears to be completely attained, and that without any apparent loss of power. It was at first supposed that the draft would be so seriously checked by the new stack as to counterbalance the other advantages; but experiments show that steam is made equally as well as with the ordinary stack .-St. Louis Railway Register.

The St. Louis Times states that next to fron, lead occupies the most important place in the mineral products of that State. The lead mines now only partially developed, owing to the lack of capital, occupy a vast area of territory, and will ultimately prove a source of great prosperity to the State. In former years a large quantity of foreign pig lead was imported for use in St. Louis, the imports in 1869 having been 7857 pigs; were developed, the consump tion of the foreign article decreased, until in 1872 not a single pig was used. The reg celpts of lead last year were

exports from St Louis amounted to only 4,718,223 pounds, the remainder having been upon testing plates same size as above, riveted retained for home consumption. The "soft brands" of Missouri lead are equal to the best imported makes for the manufacture of white lead, and are rapidly taking their place.

> M. De Lesseps, having succeeded so well at Suez, has determined to cut another canal, this time across the Isthmus of Corinth. Although the proposed canal would be but five miles long, the labor expended on it would be much greater than that employed on the Suez canal, as it would have to be cut through a chain of hills, the lowest of which is more than three hundred feet above the level of the sea. The completion of the canal would obviate the necessity of the dangerous circumnavigation of the Morea

> A company has been formed with \$300,000 capital to work the Little Missouri coal mines near Clayton, Brown county. The coal is easily mined, the vein being near the surface and nearly three feet in thickness. In quality it is: pronounced equal to the best Illinois coal. The company claim that they can deliver coal at



THE GILBERT ELEVATED RAILWAY.

the lower portion of the truss is also strength- referred briefly to the period when gas was first which was then made by alarmists in regard to the columns. Two lattice girders extend from the dangers by which it was attended. Now all those futile fears were obsolete and accounted silly. It was so with steam as a means of radiating heat through buildings. There was now raised a cry against it. When properly undereral construction of the road is a series of stood it would be found to be safer than any other medium. He deplored the fact that some persons were driven, by prejudice, to ascribe every fire which occurred to the heat of steam itself. The number of buildings has become immensely great throughout which the desirable temperature for comfort or other purposes is spread by means of coils of pipes, which are found on every floor, in close contact with the wood. If this were so dangerous, the whole city would have been burned up years ago He granted that the wood might be set on fire the view of horses or pedestrians by shields a if the pipes became charged sufficiently with foot or two in hight running along both sides of dry heat to occasion a degree of temperature above that of ordinary combustion. But superheated steam, when there were no attachm mile, exclusive of stations or rolling stock, and to the boiler to make it dry, never did nor never could be heated so intensely as to originate flames at a distance from the furnace. In the

his theory, citing numerous incidents from the | tween the holes might be regarded as yielding ,285,769 pigs, or 22,882,650 pounds, of which supposed to have been caused by superheated steam. One of these had occurred on a Sound steamer, when the felting on the cylinder, 30 ft. away from the boiler, burst into flames six

times during one night. A gentleman here interrupted the speaker to relate an instance in his remembrance, where the roof of a wooden shed, in Williamsburgh, was ignited by a steam pipe in contact with it.

Fire Marshal McSpedon said that since the discussion of superheated steam had begun, an example of the truth of his theory had come in a very apropos manner under his notice. In the Harlem Gas Works the roof had been set on fire by the contiguity of the steam whistle with the wood.

Mr. Hewitt, a young engineer, said that he 'ran" a boiler up town, and had kept matches in close contact with the steam tubes connected with it for days together, for the sake of experiment, and they had not yet been consumed.

Mr. Osborn, another young engineer, related incidents of the spontaneous combustion of wood, after having been charred at less than 120° of heat, and when removed from the vicin-

The chairman stated that this was a subject

experience of various engineers of combustion the full ultimate strength of the material, is Missouri produced 20,427,000 pounds. The erroneous. The curious part of the experiment was that

> together with % inch rivets, the result was in favor of the punched plate. These plates tore under a pressure of 22'3 tons per square inch, the rivet sustaining the exceedingly high shearing strain of 25.6 tons per square inch, while the drilled plates sheared under a strain of 20-8 tons, the rivets enduring 23.8. This is worthy of notice. It is evident from this experiment that there is some cause that makes the rivet in a drilled hole shear more readily than in a punched hole. The committee thought this might be due to the fact that "the edges of the drilled holes are sharper and more compact, and consequently more capable of shearing than the edges left by a punch." Whatever cause may be assigned, the fact remains that in these experiments the punched joints practically sustained a greater load than the drilled ones. Another important fact ascertained was, the 'proportions of strength" between the solid and punched, or drilled plate. In the punched plate, the mean breaking strain in the three experiments was 17.599 lbs., the mean in the solid plate was 32.685, making the "proportion of Quincy at nine cents per bushel.

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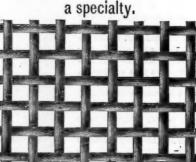
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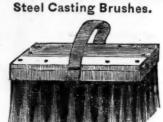
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The Life of Iron Rails.

A paper was recently read before the Civil Engineers Club of the Northwest, by Mr. L. P. Morehouse, in which occur statistics of considerable interest. The information given relates to the actual wear of a number of brands of directly or by employing the gases producible rails, each from a different maker, and therefore fairly representing the average rails of the country. He says: The road on which these rails length tangent, 21 per cent. with curves of less and partly because their ashes sometimes exert than 5°, and 2 per cent, with curves of over 5°. The grades are: level, 20 per cent.; less than 20 ft. per mile, 20 per cent., and between 20 ft. and 42 ft. per mile, 60 per cent, Its yearly mileage of engines is about 1,000,000 miles. The engines used weigh 30 and 32 tons, have four driving-wheels, and carry five tons on a crease of temperature took place. In a foundry wheel. The speed of passenger trains in mo- at Bruckel. Corinthia, three charcoal charges. tion is 24 miles per hour, and that of freight each of two cubic feet, are first thrown into the trains 15 miles. If trains are behind time they

will sometimes run at a greater speed than this. Examination was made of seven different lots of rails which had been in use from 234 years 12 feet hight was too much cooled off to proto five years. For convenience, I have numbered the different lots from 1 to 7, the numbers referring to the time when the rails were nites might be used, if pressure, hot blast and laid, No. 1 having been laid first and No. 7 last: a large addition of lime were employed. ABULAR STATEMENT OF SERVICE OF IRON RAILS.

Missing A	otal number of bars.	Per co of ba still in	TA -	er cent, of bars taken out.	ears in use.
100 61107	E .	0	m	P4	\$24
No. 1	1,089	60	18	22	5
9	. 630	66	11	23 26 47	4
3	2,520	49	32	26	4
4	1,989	25	28	47	4
5	1.976	46	9	45	3
6	. 393	56	19	25	3
7	. 836	56 65	24	11	2

Rails No. 1 were made under the following

"The rails are to be made of iron of good quality suitable for rails, and to be subject to the inspection of an agent of the railroad company in all stages of manufacture. No old rails are to be used in the manufacture of the caid rails. The piles from which the rails are rolled are to have a top and bottom piece of reheated iron not less than an inch in thickness, running the whole length of the pile. The said tops and bottoms are to be manufactured from puddled flats not more than 36 of an inch in

Rails No. 2 were made from a pile 71/2 inches base, 81/2 inches hight, made up of two flats at bottom and two flats at top, the space between these flats filled in with three pieces of old rails; the lower two flats and the top flat made from old rails, the second top flat from muck bar. Bottom flats each 1 inch thick, top flat 11/2 inches, and muck bar 3/8 inch thick.

Nos. 3, 4 and 5 were made at different mills under the same specification:

'The rails are to be made from a pile at least 8 inches by 8 inches, of which the head or top piece shall be composed of best No. 2-or reheated-iron, at least 2 inches in thickness, made wholly from puddled bars puddled from pig iron, in which no cinder mine has been used; in other words, the pig iron used for the head piece shall be made from good native ore alone, without any admixture whatever of cinder. The remainder of the pile shall be put together so as to break joints, with as few short pieces of iron as possible, and of such quality as will give a good, tough, fibrous flange on the Both the head pieces and the rail piles shall be bloomed in the usual manner, and reheated to a good soaking heat before the final rolling. All the materials and processes employed in the manufacture of these rails shall be the same as if they were to be guaranteed for seven years."

No. 6 rails were made from a pile 71/2 inches base, 7% inches high, composed of 8 layers of flats each one inch thick, except the one next below the top plate, which was % of an inch thick. The top flat and the fourth from the bottom were 71/4 inches wide, the others were composed of pieces 3 inches and 41/2 inches wide; the different flats breaking joints. The bottom piece was from scrap iron, the top piece of reheated muck bar, and the one next below of muck bar

The pile for No. 7 rails was composed of a base consisting of 3 pieces of old rails, 2 placed side by side and the third inverted between them; a muck bar % inch thick rests on base of the inverted rail, with its ends turned down to rest on the outer pieces. Three old rails rest on this flat, arranged as in the base, and a reheated muck bar 11/4 inch thick with ends turned down makes the head.

This pile received six passes, rolling it into a bloom about 6 feet long and 51/4 inches by 6 inches. It was then reheated and afterward rolled into a rail.

The rails originally laid are made from a flats, each 134 inches thick and 7 inches wide, the one next above the bottom piece composed of short pieces 7 inches square and placed with the fiber at right angles to the direction of the pile. The top flat was made of a granular iron double-worked, the others of single-worked iron, the bottom flat being of good fibrous iron. This pile received 4 passes through box rolls at a speed of 18 inches per second, was then reheated to a welding heat and received 8 passes through draft rolls at a speed of 6 feet per second, being worked edgewise through the

After a service of 11 years, 33 per cent. of these rails were in good condition. The mileage for these years was, however, less than that considered for the other rails, so that 51/2 years' service of the latter would be equal to 11 years service of the original rails.

The iron foundry in East Newark, soon to be opened, will employ 200 men. Many workmen there are now out of employment.

Khern's Blast Furnace for the Use of Lignites.

The use of lignites, or brown coals, for metallurgical purposes has thus far been very limit-Like ordinary coals, they are either used therefrom. The gases have been used for puddling and welding, but in the smelting of iron from its ores, lignites are yet little in use, partwere laid is 131 miles long; 77 per cent. of its ly because they crumble readily into fragments, an injurious influence.

According to Tanner, attempts have been made to use the brown coals of inner Austria in the high furnace, but only one-eighth-at most, one-fourth-could be mixed with the charcoal charge; otherwise a considerable decupols, and afterward a brown coal charge of 30 pounds. When It was attempted to replace the third charge with lignites, the furnace of duce good iron. It was Tunner, we believe, who first called attention to the fact that lig-

It is well known that the great West abounds black color, a resinous lustre, a brown streak, and deficient of any wood structure. According to Professor Newberry, these lignites underlie not less than 50,000 square miles in the Mountains. A great deal of this coal has been used on the locomotives of the Union Pacific and the Central Pacific Railways, where no high temperatures are necessary; yet its use for the blast furnace is now virtually given up for the reasons referred to. It is evident that any method by which these lignites could be used tance, and there is good reason to regard with concrete, 134 cubic yds.

The St. Joseph Bridge.

We gather the following from an article in the St. Joseph Herald: A company was organized and incorporated in Jan., 1871, under the name of the St. Joseph Bridge Building Co. Immediately after organizing, the company engaged Col. E. D. Mason, C. E., to make the survey and estimate the cost. Under his direcsurvey and estimate the cost. Charles to tion the survey was made and completed on the survey was made and completed on the cost of the co the 4th of March the same year, finding bottom at the average of 45 feet; and he submitted his report, with maps and plans, recommending the present site and estimating the cost at \$715,000. On June 10th the contract for building was let to the Detroit Bridge and Iron Works, for \$710,000—the bridge to have six piers, with three fixed spans each 300 ft., a draw span 363 ft., and a shore span 80 ft. On either side of the track will be a carriage-way and a foot-way on either side of the outside of the bridge. The bridge is to be a Pratt Truss. On June 17th the contract was let for furnishing the stone. July 14th the bridge was peranently located, and in the last of the month stone commenced arriving. The first piles for the trestlework to the temporary approach from the west side were driven on Sept. 23. The framing of the caisson to pier 6 commenced Oct. 5, and the caisson was completed Nov. 5. in vast beds of lignites, which are mostly of a The first masonry was laid on the 6th, and the sand pumps set at work on the 9th. Jan. 2, 1872, the pier was completed. The following are the quantities of material used in the construction of the caisson and pier: timber, 115, Great Basin and along the flanks of the Rocky 000 ft., B. M.; masonry, 629 cubic ft.; concrete, 70 cubic ft. Workmen commenced setting up the caission to pier 5 Nov. 23, 1871, and completed it Dec. 28. Feb. 2, 1872, it was landed on the bed rock. Quantities; timber, 142,000 ft.; masonry, 933 cubic yds.; concrete, 135 cubic yds. The caleson to pier 4 was com- was readily found in that employed to build the menced Jan. 5, 1872, completed Feb. 17, and directly, viz., without the employment of expen- landed on the bed rock March 13. Quantities sive gas generators, would be of great importimber, 175,000 ft.; masonry, 954 cubic yds. The caisson to the

0

KHERN'S BLAST FURNACE FOR THE USE OF LIGHTES

charge to drop over the cone, d, into the far- cubic yds.; concrete, 70 cubic yds. nace. e is a reservoir for the gases; these pass through f to the ovens for carbonizing, to the 20 hoxes, made of cast iron, of a capacity of one \$2000, was raised by the original incorp serve for the reception of the fuel. The botpounds of white pig iron may be produced by it for \$1.07, gold, which would make \$23.96 for the long ton of 2240 pounds.

direction.

"In conclusion, we would remark that Mr. Brunner finds the hight of the furnace too low for the complete reduction and carbonization of the ore, but states that coked lignite was used in Austria in the quantity of one-third of the charge of charcoal with complete success."

The English coal masters are moving in the matter of a union among themselves as a means anything which tends to economise either of of protection against the miners. As it is they are almost powerless against the workmen.

satisfaction every improvement made in this upper draw-rest was begun March 29, and reached the bed rock May 21. Quantities The following is a translation from a late timber, 374,000 ft.; loose stone filling, 2000 yds. number of the Illustrirte Gewerbezeitung relating This draw-rest is faced with iron, The caisson to this furnace: "Assuming that, in the higher to pier 2 was commenced June 14, 1872, was zones above the belly, no alteration of the ores finished July 16, reached the bed rock Nov. 6th. takes place, but that reduction and carbonization only commence in the latter, Mr. Khern high water, which usually lasts only from 15 to accomplishes the preparation of the materials 20 days. Quantities: timber, 344,000 ft.; maoutside of the furnace, and this does away with sonry, 1907 cubic yds.; concrete, 95 cubic yds. two-thirds of its whole hight. The same is The calsson to pier 3 was commenced Oct. 26 only 17 feet high, or as high as the belly, the and completed Dec. 2; it is now down 35 ft., ascending gases being used in this particular and within 15 ft. from the bed rock. Quanti apparatus to char the lignites, to roast the ores ties: timber, 199,000 ft.; masonry, 1100 cubic and to heat the blast. a is a cylinder for the re- yds.; concrete, 90 cubic yds. The caisson to ception of the ore and the prepared fuel; b is pier 1 was begun in Aug., is now on the east another cylinder which, when lifted by means bank of the river, and will soon belaunched. of the rods, c, attached to levers, allows the Quantities: timber, 120,000 ft.; masonry, 850

The substructure is nearly completed. Work upon the superstructure is already commenced. roasting furnaces and the apparatus for heating Its weight will be about 1425 tons. The system the blast, to be conveyed to the stack, E. The of river protection adopted has proved entirely ovens for carbonizing are built in such a man-successful, and during the extreme length of ner that the gases issuing from the furnace the high water last summer, the dykes stood pile 7 inches base and 71/2 inches hight, of 6 pass through two channels divided by a partifirm and fully accomplished their purpose. tion, above which there are, in two rows, 18 or The money for the preliminary survey, about ton each. They are provided with covers, and The total subscription of stock by individuals amounts to about \$14,000. In May, 1871, the toms, as well as the sides, are exposed to the city of St. Joseph voted to subscribe \$500,000 gases, and pipes convey the generated tar va- in the stock of the company. Early last season pors into condensers. Such a blast furnace, the company issued first mortgage bonds for with the other furnaces mentioned, is said to \$800,000. About \$255,000 remain unexpended, cost \$46,500, gold, and it is stated that 100 and it is estimated that when the bridge is completed \$100,000 will be left. If the weather does not interfere with the further progress of the work, the bridge will be finished about the middle of April.

Coal Dust as a Building Material.

A correspondent of the London Mining

Journal writes as follows:
In the present state of the labor market, and the increased cost of all kinds of material, these commodities will undoubtedly be carefully and enquiringly considered. As tending

to this end, I would especially draw the attention of colliery proprietors and iron masters who may be under the necessity of erecting a large number of houses as substantially and cheaply as possible, the special advantages of concrete as a building material. By its use a variety of otherwise useless materials will be utilized and made to serve a valuable purpose. In large collieries or iron works there is neces sarily a large quantity of such waste materials, the greater portion of which would only require to be carted away to increase the surface damages, and it is in utilizing these that concrete forms such a valuable building material. Concrete, as is well known, consists of about an eighth part of Portland cement, and seveneighths part of gravel, well mixed together with the proper quantity of water. But concrete can be made with other substances than gravel, as was well demonstrated at one of the largest collieries in Fife, where very superior houses were erected, by workmen totally unac quainted with the building of houses, out of furnace slag, mine or ironstone grist, rubble, and useless stones of every description, and that at a cost very much below either brick or stone, forming, when finished, the most comfortable houses belonging to the proprietors. Before commencing to build a series of experiments were made to determine the proper proportions of cement required by the various materials and the substance most suitable for building purposes

After a protracted trial, a mixture, composed of a sixth part of cement and five-sixths part of mine dust, was found to be the best, and was accordingly adopted; but where this or gravel is not readily got, ground slag will be found to serviceable apparatus to build the houses: this Waverly Hydropathic Establishment, at Melrose (that large building being entirely composed of concrete), and consists of a series of thick sheet iron plates, stiffened at the edges with angle fron, the plates being attached to up rights of T iron, and are kept in the proper po sition by pins, the plates being fixed so as to be readily raised as the building progresses. The nodus operandi is as follows: After the requisite proportions of mine dust and cement have been mixed together, and the whole thoroughly saturated with water, the mixture is flung in between the plates, and large pieces of slag or stone bedded in it, thereafter another bed of concrete, which fills the interstices between the large pieces and thoroughly fixes them; another layer of stones or slag is then added, and so on, till the space between the plates all round the building is filled; after being allowed to stand for a night, the concrete will be hard enough to allow of the plates being lifted in the morning.

One feature in this apparatus is its extreme simplicity, so that one man acquainted with it can, in a few days, teach half-a-dozen laborers to do all that is required. Where gravel is at all accessible it is, of course, preferable by far, as it does not absorb nearly so much cement only requiring an eighth, while the mine dust or ground slag each requires a sixth part. Alhough large pieces of stone or other substances are not usually employed in the building of concrete houses, still it fills up the plates much quicker, and consequently cheaper, while the building is firm enough for all purposes. The Experimental Workman's Cottages, on which my calculations are based, were built in blocks of eight rooms, forming four double-roomed houses. The dimensions of each block were 64 ft. by 25 ft. over all; each house consisting of a kitchen 10 ft. by 14½ ft., and a room 14½ ft. by 14 ft. Each block was intersected by three concrete partition walls, while each house was subdivided into room and kitchen by thin brick

In the following estimate of the cost of such houses it is taken for granted that mine dust and slag are available, but where these are not to be had parties desiring to use the estimat can add or deduct from it, as suits their particu lar circumstances:

ESTIMATE.

Wages of 6 laborers three weeks, at (say) £7 per week. 21 0 0 Portland cement 17 tons, at £3. 10/per ton. 82 10 0 Portland cement 17 tons, at £3. 10/per ton. 82 10 0 Portland cement 40 tons, at £3. 10/per ton. 82 10 0 Portland cement 40 tons, at £3. 10/per ton. 82 10 0 Portland cement 40 Portland cement

Total cost of building each block.....£87 9 At the same time that these houses were being built a number of brick and stone houses were also erected, of equal dimensions, and in every respect similar, when it was found that, beside much superior, these houses were immensely cheaper than either brick or stone—the lowest offer for the brick blocks being £121, while the stone houses exceeded very considerably even that sum. For the reason that there are no seams in the building, and as the concrete is impervious to damp, while the concrete parti tions dealen all sound, it will be readily sup posed that they make very comfortable houses and are well worthy the attention of coal own ers or fron masters.

Iron Works in Hangary .- A correspond ent of Engineering writes as follows:

The iron works of Hungary have never been in a very flourishing state, owing to their want of mineral fuel, and the inferior quality of iron ore which they were obliged to amelt. The principal iron ores of Hungary are carbonates forests, of which the north of Hungary once sentatives, in addition to the cost of his suit,

could boast. Instead of letting the wood rot away in the forests, the only mode of utilizing it was to make charcoal, and to produce pig iron with it which could be brought to the market. In this way some 40 charcoal blast furnaces have come into existence in the abovementioned counties, but now that railways run through their districts, and wood has become scarce and dearer, they are in a languishing state. Beside these iron works, of which Theiszhotz, Rhonitz, and Rakos are the best situated there are blast furnaces at Diosgvor. near Erlau, at Antalocz, Felso, Remete, and Szina, in Unghwar county, at Moyesesfalu, and Szeleszto, near Nagybanya, Jakubini, in the Bukowina, Reschitza, Bogschan, and Ruskberg, in the Banat, and some others. Some of these works belong to the government, and have lately been put to sale. At Diosgyor, one mile from Miscolez, are two blast furnaces, a forge, and rolling mill for rails, and large forests and coal mines, the same as at the Vajda-Hunyad iron works. However, only the latter seem to have been worked with an annual profit of some £4000, whilst the former have never paid yet any profit at all.

A Monster Casting .- The Mining and Scientific Press, of San Francisco, says: At the Risdon Iron Works, in this city, the largest piece of casting ever made on this coast was perfected on New Years day. It was a new cylinder for the Pacific Mail steamer Arizona. The cylinder in the rough weight 43,000 pounds, requiring 25 tons of melted metal, allowing for waste, finishing, etc. It was at first supposed it would be necessary to have the casting made in the East, but answer the purpose admirably. This import-ant question settled, the next was to find a it, notwithstanding the necessity of new tools, etc., for this immense piece of work. A new pit was made and a crane of 20 tons capacity, with patterns, cones, molds, etc. When tried the cylinder will be 105% inches in diameter inside and 13 feet 8% inches in length. One week will be required to cool the metal and several weeks more to bore and finish the cylinder. It is expected to be in its place ready for work in the steamer in two months from the signing of the contract. The success of this casting fully demonstrates the capability of our workmen to turn out work of any description, and there is no reason why orders should be sent East for anything in this line. Hereafter, of course, such jobs will be undertaken here, and we hope to see all steamship work of every description given to our local foundries instead of sending away from home for it.

> The Scotch Blast Furnaces .- A con siderable number of the Scotch blast furnaces are either put out of blast entirely or damped down, owing to the want of coal and ironstone consequent upon the bitter dispute which now rages in the mining trade. The Chapelhall furnaces (Monkland Iron and Coal Company, limited) are all in blast again, but the Carnbroo furnaces are thoroughly out and are not likely to be again blown in this year. Calder, Langloan, Gartsherrie, Summerlee, and one or two other works are only able to send out a considerably reduced output of plg iron. Mr. Ferrie is progressing with his patent self-coking blast furnace. He has a third furnace on the new principle almost ready for blowing in, and the second, which is the one that was so scrutinizingly inspected by the members of the Iron and Steel Institute, on the occasion of the Glasgow meeting of that body, is giving results far beyond the most tanguine expectations of the patentee. - Engineering.

Senator Harlan introduced a bill recently authorizing the Secretary of War to pay to Gen. Benjamin S. Roberts fifty cents as a royalty on each breach-loading small arm that has been made by the government at the public armories, on the plan known as the Allin, Springfield or ordinance gun, since 1865. It also directs the payment of a royalty of twenty cents on each thousand metallic cartridges tapered by machinery since August 1, 1866. The condition of this payment is that Mr. Roberts shall transfer to the United States all his rights under the patents covering these inventions. The Allin or Springfield gun, which takes its name from a government employe in the Springfield Armory, was for several years the favorite of the ordinance bureau, and a stock company called the Regulation Arms Company, composed chiefly of ordinance and other officers of the army, was formed for its manufacture. The gun had little that was novel in its construction, the most important devices being taken from other guns that competed for adoption. It has now been substantially abandoned, and the ordinance bureau is attempting to select another breach-loading The Secretary of War, in a report on the arm. claims for royalty on inventions used in the Springfield musket, sent to the house recently, says that 124,341 muskets have been altered on the Allin plan since the winter of 1865-6. The chief of ordinance has repeatedly called the attention of Congress to the competing claims of patentees set up against this gun. One suit is now pending, the Secretary says, in the Court of Claims; another claimant has gone to Congress, and other patentees are awaiting the decision of pending questions. The most important claim is that arising out of the suit or James B. Ely, to restrain the commanding offlcer at the Springfield Armory from manufacturing any Springfield muskets. The decision of the court is that one of the features of the breach-loading system adopted by the army, is an infringement on Ely's patents. A settlement with Ely's representatives, he being dead, and brown hematites, which are raised from is, Gen. Belknap thinks, required by justice. lodes in the Zips and Goinor counties, and do One dollar per gun is thought by the depart. not give an average yield of above 30 per cent. ment to be an equitable amount to divide In no other country would such poor ores have among the several claimants, and of this been smelted, but for the sake of the immense twenty-five cents should be paid to Kly's repre-

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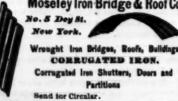
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The Architectural Utility of Iron.

Methods of Building with Iron-Corrugated Iron - Painting - Fire-Proofing - Iron Churches.

IV.

Floors are frequently made by springing arches from one beam to another, the foot of the arch resting on the flange and the web constituting an abutment. The spandrels are filled in with concrete and the floor laid upon this basis. This gives a strong and fire-proof floor, but it is very heavy and expensive, and requires much furring down from the arches to form a straight ceiling for lathing and plastering. In place of brick arches, it has been proposed to use hollow segmental tiles dovetalled, forming a truss arched on the top.

Iron roofs are built of iron rafters, or with brick arches very much like floors. Great allowance, however, must be made for the thrust of the roof. A recent introduction into iron construction is iron lathing made in such a manne that the plaster keys to it. By the aid of this, perfectly fire-proof Mansard roofs may be constructed. In such roofs the rafters are of iron, on the outside of which is fixed the iron lathing to which are fastened sheets of iron. On the interior surface of the rafters is fixed the lathing to which the plaster is attached. If the slate cracks from an internal flame playing upon the roof, there remains a solid incombustible wall. The dormer windows are also made of iron. Galvanized iron cornices are also a modern in vention. They are lighter than stone, and do not serve to carry a conflagration like wood. They admit of greater projection than stone and require less brick support. They are also durable.

CORRUGATED IRON

has of late been introduced largely for roofing purposes. It is easily laid and the gutters in the iron leads the water rapidly from the roof. When constructed of a sufficiently thick material and galvanized or constantly painted, it makes a very good roof. The nails must be driven in the ridge of the corrugation, else the water will collect around them and rust the iron. The corrugations are from 21/4 to 6 inches apart and from % to 8 inches deep. The Fulton ferry-house of this city is roofed with this material. So also is the building of the Knickerbocker Ice Co. in Brooklyn, and the Flushing Railroad depot, at Hunter's Point, L. I. It is a very light and cheap material for the roofs of railway stations. As a material for general building purposes, however, it does not rank so high. It is generally made very thin, possess ing no strength, and rusts with the greatest rapidity unless often painted. It is used as a weather boarding, and frequently for the sheathing of buildings. Such a structure was the Brooklyn Tabernacle, simply a huge wooder frame sheathed inside and out with corrugated The city authorities have known that such buildings were not fire-proof, for they have granted no permits, save in exceptional cases, for their erection for the last four or five Corrugated iron came into use as a material for the construction of buildings about fifteen years ago, when it was usually supported by a light iron framework. The expense of building on this plan, however, was too great and wood was substituted for the iron framework. When heated it expands and draws its nails, or else warps. Being not over 1-16 or 1-32 of an inch thick, it does not in any way protect the wooden framework from the heat of the flames and even promotes a draft, the space between the inner and outer sheathing acting as a flue An illustration of the manner in which such buildings burn is had in the case of a slaughter house at First avenue and Forty-fifth street, in which the iron plates curled up and cracked off and the walls disappeared rapidly.

Returning to the system of iron construction, we should speak here of the immense iron doors that are now made, swinging on a pivot in the center and rolling on tracks. The rear windows of buildings are also provided with from shutters, and rolling shutters cover the front windows. Elevators are also among the ssories of modern iron architecture.

The works in which the component parts of an iron building are made are often of a very extensive character. For example the New the Grand Central Depot and the Hudson River Railroad freight depot, occupy 250 lots at the toot of East Fourteenth street, and employ some 450 men. They consumed last year about 2000 tons of cast iron and 1200 tons of wrought

The various portions of an iron building are all fully prepared before leaving such a shop. The iron castings, when taken from the mold. have a rough, sandy coat, which is removed by wire brushes and scrapers, in what is known as the scratch house. Large iron cylinders, revolving on horizontal axes, also receive the castings, in which they are rotated with scrap cast ings for one or two hours, at the end of which the pieces are quite smoothly finished.

The round portions of the large columns are turned in a lathe and painted, and the ends are squared smoothly, so that they will stand perfectly true. The joints of iron window casings, and the iron walls between doors or windows, are also carefully fitted, so that every part may be adjusted to its place with precision. The body of the capital is cast with two or more parts, which are subsequently fastened together with small bolts. The helices and volutes are cast separately and secured by screws. Thus s very elaborate capital may be made at a moderate expense, which would cost, if cut from The stone stone, a much greater amount. capital also may be mutilated by the breaking off of some fragile volute or ornament, while such a loss could easily be repaired in the iron capital, by the casting of another ornament of the same character. Whenever practicable, the iron structure is always put up and taken down again before sending it from the shop. stamps in all the small shops.

This is very necessary, as it is important that all defects should be remedied there. A fault in a tie or strut might prove disastrous when the building was finally erected.

THE PAINTING OF IRON.

Iron to be used in buildings requires to be painted to preserve it from oxidation. By this neans any color may be given which taste may dictate or the surroundings require. building should be painted inside as well as out. The windows, lintels, sills, etc., must also be painted before being placed in position. The joints should receive a coat of paint before bolting or riveting. In applying ornaments, they must first be painted, the screws must be dipped in paint, and the burrs, after drilling holes in the iron, should be carefully filed away and the surface painted. Iron so treated will retain its sharpness of outline long after stone has begun to crumble and break at the edges. To paint iron costs less than the painting of wood, on account of the non-absorbent character of its surface.

When iron, however, has been painted a bright color, it has an unpleasantly glaring effect on the eye. It also magnifies, and renders palpable the defects in the metal. To avoid this, the face of the iron is often grooved with fine parallel cords, which produce a very pleasing combination of lights and shadows.

THE CONSTRUCTION OF FIRE-PROOF BUILDINGS is a subject intimately connected with the one we are at present considering, since iron has been generally regarded as a safe material in the building of fire-proof structures. Public opinion, however, has of late been unfavorable to iron in view of the many and disastrous confiagrations that have recently occurred, in which iron buildings have seemed to fall before the flames in the same manner as other structures Such a judgment is hasty, for the subject of fire-proofing involves many considerations. A fire-proof building, in the sense in which the term is usually understood, is unknown. The N. Y. Post Office, now building, is probably as nearly fire-proof as the present condition of science can make it, but even this could not meet the popular meaning of the term. A fireproof building, as ordinarily understood, is one which, when filled with highly combustible materials and in the midst of a general conflagration, will resist the action of the flame. This is almost impossible. When exposed to extraordinary degrees of temperature wrought iron softens, cast iron snaps, granite bursts, and brick walls warp and give way.

Iron does not readily yield to heat. It does not split or crumble like stone, and will stand a reat temperature without appreciable change. A fire-proof pillar may be made of a combination of iron and plaster in the manner we have described, which is practically incombustible. The system of brick arches resting on iron beams forms a fire-proof flooring; the iron, however, should be protected from the contact of the flame. This construction adds one quarter to the cost. A system of double flooring is also advocated, the interval being filled with plaster. Double walls of brick with intervening air chambers and united at intervals with ron rods are viewed with favor. Hoistways should be protected by automatically closing trap doors, and stairways should be absolutely free from wood. All the openings of a building should be protected by fron shutters of doors. When the Appleton building was burned some three or four years ago, the valuable warehouses on the other side of the narrow street known as Catherine Lane, were only preserved because every window facing the burn-ing building was closed by iron shutters.

An important precaution in the building of a ire-proof structure is the complete separation of each room from the others. A letter to the Providence Journal, not long ago, describes the method of building in Italy by which the houses are rendered fire-proof. It consists in perfectly separating each room from the other by sufficiently thick partition walls and a stout ceiling. A fire originating in one room is there fore confined to that apartment, it being impos sible for the flames to communicate with another. As it is, however, in our own buildings the partition walls have a thickness of 8 or 12 inches where 16 inches is required, and in many cases timbers are inserted in such walls, mak-York Architectural Iron Works, the builders of ing them still less capable of restraining the The iron lathing of which we have previ ously spoken also contributes to retain the fire within the room.

A very interesting subject in the discuss of iron construction is that of

IRON CHURCHES.

Iron in ecclesiastical architecture has been generally viewed from such a standard as the Brooklyn Tabernacle, which lately gave way before the flames. Much criticism has been indulæed in respecting these hippodromic structures, it being charged against them that they resemble circuses. This criticism, how ever, only applies to such churches as the Tabernacle, which in reality was not an iron church but a wooden structure weatherboarded with thin corrugated iron. Cast iron churches have been made, and may be constructed in any desired style. The capacity which iron pos sesses for ornament renders it especially adapted to this kind of architecture. The Architectural Iron Works have recently built a cast from church, which they have sent to Peru in sections. With this material a very handsomely ornamented cathedral could be made, if neces sary, and sent to the opposite side of the globe.

The French government, it is reported, has just purchased the secret of the composition of an absolutely indelible ink, which resists the action of every known chemical agent. This ink will accordingly not only be used on all stamped paper in the postal service and the revenue service, but in the recording of all acts of the Assembly; it will also be sold with

The Iron Interests of Missouri.

We take the following interesting facts and igures from an article in the St. Louis Globe:

While we notice a very large increase in the quantity of ore mined and the production of plg metal, it does not follow that the year has been a prosperous one for all the furnace owners. Some of them had sold, as far back as th fall of 1871, all their product for the year under review, at prices current at that tide. Since then the prices of ore and metal have advanced very considerably, and the deliveries have been in consequence, in many cases, made at a loss Of the future it is impossible as yet to form any correct idea, as much will depend upon the course of iron at home and abroad. It would seem probable, with the constantly increasing demand for all the articles into which iron is molded, that the capacity of the furnaces now operating and in process of erection will be taxed to the utmost

The following table shows the total production of charcoal and stone coal iron for the year 1872, compared with the previous year:

Increase, 1872

In the following table we give the entire production of iron ore and pig metal for the past five years in tons :

	TRON OF	CE.	1
1868	195,000 316,000 250,000	Consumed. 58,000 75,000 109,000 114,000 153,000	Shipped. 47,000 130,000 907,000 170,000 260,310
	rig ino	St.	
1868	46,000 72,500 84,853	Consumed. 17,000 20,000 35,500 47,000 70,057	Shipped. 18,000 96,009 87,000 87,858 85,900
Among the va	rions ore	deposits no	ow heing

worked, first in importance comes the Iron Mountain. The company engaged in working these deposits state that they have raised 310, 000 tons of ore during the past year, against 169,796 in 1871. The shipments of ore by rail were 205,753 tons, against 92,51714 tons in 1871: by river, 135,721 tons; and in 1871, 92,530 tons. The total production of iron at the Iron Mountain, Ironade, Pilot Knob, Scotia, Mera mec and Moselle charcoal furnaces was 44,568 tons, an increase of 8907 tons over 1871.

Of the undeveloped mineral reso Missouri the Globe says :

If one will travel through the State, taking the Missouri River as a northern boundary there is hardly a county in which he can put his foot which is not known to contain extensive deposits of some one or more of these metals which are of daily use in the world of manufac tures. In Jefferson county large deposits exist of hematite iron, lead and zinc ore, and of fire and ball clay. Pulaski, Dallas, Laclede, Cam den, Miller, Morgan, Washington and St. Fran cois counties, underneath the surface, are but vast masses of the articles first mentioned. In Madison county is found in abundance specula iron, tin, manganese, copper, cobalt and plum bago, or black lead. Bollinger county is known to contain in considerable quantities kaoline ochre, umber and sienna. In Crawford, Phelps Dent, Shannon, Iron and Reynolds are the largest known deposits of specular iron ore in the world, as well as lead and zinc. Hickory, St. Clair, Henry, Cedar, Pope, Dade, Jasper, Newton, Barton, Bates, Cass and McDonald are each underlaid by extensive accumulations of lead and coal, with more or less iron ore. But with the hitherto sparsely settled and comparatively unknown portions of the State in which man of these counties are located, a knowledge of the locality of these deposits is, where known at all, confined to a few persons. These guard their secrets closely as possible, and in many cases, without the means necessary to deep mining, their operations have been confined to the surface. Though not generally known, a very large portion of the ore brought to this market is mined with the aid alone of a pick and shovel, the miner never going below a point from which he can throw out his product with his shovel.

Coal and Iron in Ohio.

of coal and iron in Ohio is taken from the re port of Gen. Sherwood, Secretary of State. Ohio is not rich in mineral resources after the

napper of Colorado or California. No valuable deposits or precious metals are known within her territory; still she has more than her full proportion of mineral wealth, the most valuable of which is her immense coal fields.

The aggregate of stone coal mined in 1871, as returned by the township assessors, is 55, 316,666 bushels. The returns show that coal was mined in 37 counties in the State

A comparative view of the amount of sto coal mined in Ohio for a series of years, as re-

		Bushels
 	 *******	 98,887,89
 	 	 30,527,29
 	 	 46,703,89
 	 	 55,964,39

ly in excess of these figures.

Sixteen counties in Ohio mined over a million bushels each during the year ending April, 1872 The following table exhibits the mining opera-

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The remaining 21 counties in which coal was mined in 1871 are: Mahoning, 648,440 bushels; Portage, 500,584 bushels; Vinton, 497,540 bush els; Harrison, 461,165 bushels; Washington 326,419 bushels; Coshocton, 278,447 bushels Noble, 267,498 bushels; Carroll, 184,400 bush els; Morgan, 185,773 bushels; Monroe, 67,799 bushels; Scotia, 64,871 bushels; Holmes, 54,160 bushels; Crawford, 21,987 bushels; Gallia, 12, 900 bushels; Licking, 1500 bushels; Geauga 750 bushels; Fairfield, 100 bushels; Sandusky, 90 bushels; Franklin, 80 bushels; Hardin, 50 bushels, and Lucas, 23 bushels.

Prof. Taylor, in his work on coal, estimate that, in the ordinary method of computation at least twenty-three million tons of coal are available in the State of Ohio. The annual coa production of Great Britain is about one hun dred million tons. Ohio, on estimate of Prof. Taylor, can stand the drain of Great Britain on her coal fields for two hundred and thirty years. At our present rate of consumption, on the return of 1871, we have coal sufficient to last ten thousand four and fifty years. At the expiration of that time, it is to be hoped that the Boreal gods, in their grand economy, will send us another of those great glaciers to scoop us down to the deeper hidden jewels of the earth. IRON.

According to the Federal census of 1870 there were 216,529 tons of iron ore mined in Ohio in of the new year marks an era of development of that year. There has been a large increase in other iron ores. Preparations are now being Ohio also during the years 1871 and 1872. The Columbus and Zanesville furnaces are now using one-third native ores.

PIG TRON MANUFACTURE.

The nine counties reported are Athens, 700 tons; Columbiana, 17,646 tons; Gallia, 2760 tons; Jackson, 28,000 tons; Lawrence, 33,649 tons; Mahoning, 67,630 tons; Muskingum, 400 tons; Scotia, 9991 tons; and Tuscarawas, 5000 tons; aggregate for the State, 185,868 tons.

The amount reported in nearly every instance s too low. Muskingum county reports four undred tons manufactured; while I have re liable information that the Ohio Iron Company, at Zanesville, made 14,000 tons, Franklin county, which is not reported, made nearly 10,-000 tons; and Hocking county, not reported, at least 3005 tons; Cuyahoga county, not reported, turned out 17,000 tons.

There were ten blast furnaces built or building in 1872—at Mahoning, 3; Hanging Rock, 5; Cleveland, 1, and Columbus, 1.

Effects of Over-Taxation on Philadelphia Industries.

The effects of high taxation upon the indus trial property of a locality, are once more illusrated in Philadelphia, which is mourning the oss, impending or threatened, of several extensive and important manufactures. We take the following from an apologetic article in the Philadelphia North American: "Some attention has been attracted by an announce the intended removal of the great iron works of Morris, Tasker & Co., better known as the Pascal Iron Works, from the district of Southwark, where they have long been located, to Newcastle, Delaware. It is indeed a matter of regret that a concern like that should be forced to remove by the narrow-minded policy that has deprived it of the railway facilities requisite for the convenient transaction of business. A As the establishment employs about eight hundred hands, and supports some thousands of persons, the people of Southwark who have so toolishly resisted the grant of these railway facilities, will now feel in their real estate, their retail business, and many other ways, the withdrawal of these works. Their opposition alon has prevented the grant of these facilities, and it is fitting that they should be publicly held responsible therefor. It is a matter of surprise that the city councils of a great city should nave yielded to this local clamor; and the les son ought not to be forgotten, since the same paltry spirit is visible in the efforts to embarase other great industrial works and cause their removal. It is probable, however, that the removal of the Pascal Iron Works is in some degree based upon the increasing burdens of taxedly, are heavy, and which the great establishments can escape by going beyond our borders.

Iron and Peat in Michigan .- Dr. C. Rominger, State Geologist of Michigan, in his report to the Legislature, furnishes much interesting information as to deposits of peat and iron ore in that State. In the marshy meado lands of the Peninsula an abundance of peat is stored away for future use, and is in constant ocess of formation. The large demand for fuel in the production of iron has already induced a company in the iron district of Marquette to make use of the peat, and, as it appears, with satisfactory results. Inexhaustible quantities of iron ore are said to exist in the western tributaries of the Manistique and Talquamenon Rivers. Nearly all the springs contain small quantities of iron in solution, which they deposit, if by escape of carbonic acid, or by other chemical action, the solvent power of the water from the iron should fail. The waters of all the rivers of the Peninsula are freed from the iron which they hold in solution, by passing through the extended swamp from which the rivers originate, and the small continuous secre tion of particles, in favorable spots, gradually increases to masses of such extent as to consti tute valuable ores for the manufacture of iron Such large deposits are, however, of rare oc currence. Usually we find the surface coated with a crust of ochraceous mud, or superficial sand is infiltrated and sometimes cemented into a hard sandstone band by the ferruginous matter, or concretiary lumps and nodules of a purer hard ore are sprinkled thinly over the ground, Troy, with a capital of \$25,000,000.

and frequently adhere to the root fibers of fallen trees. Spots of this kind, noticed by the woodmen and the surveyors, have been carefully indicated in the maps, and seem to show that the whole center of the Peninsula is carpeted with bog iron ore; but the quantity of the ore here alone determines its value, and not its quality. Only in a few places the ore deposits are important enough to give favorable hopes for mining operations. One of the largest deposits of bog iron ore is found on the head waters of the Taquamenon. Here, between the head waters of Two Hearted River and the west branches of the Taquamenon, a swampy, high plateau, almost treeless, spreads out, the greater part of which is almost entirely devoid of any trace of ore. On the southeast margin, however, is a grassy marsh about 60 acres in extent, over which bog iron ore of great purity is dispersed in irregular patches. The greatest observed thickness was 15 inches, dwindling down to 2 inches, and with an average of 6 inches. Dr. Rominger is of opinion that, owing to the remoteness of these places, and the easy exhaustibility of the deposits, little present benefit can be derived from these mineral stores.

Missouri Ores .- The St. Louis Times says :

Heretofore those great deposits, such as the Pilot Knob, Shepherd Mountain and the Iron Mountain, have been the chief source of supply for the iron manufacturers, and very little atten tion has been paid to other ores, but the coming made to work extensively the vast beds of brown hematite and red hematite, which are to be found in large quantities on the line of the Atlantic & Pacific Railroad and Iron Mountain Railroad, and which are the most valuable at our disposal. The sooner the iron makers learn that the best marketable pig metal is made from these ores, or from a mixture of them and the Iron Mountain ore, the sooner will the metal that is produced here take the high rank it deserves. The immense quantities and diverse quality of our ores afford the iron master eans of readily improving and cheapening his product, and making Missouri pig superior to any. It was until last year deemed impossible to make pig iron without using Iron Mountain ore, and so fallacious a notion has done more to retard our iron manufactures than any lack of capital or enterprise. The real wealth of our State does not consist in the Iron Mountain or Pilot Knob, but in the multitude of smaller deposits whose ores are richer, purer and cheaper, as in the case of the hydrates of iron of a decided cold short tendency. Capitalists intending to commence manufacturing enterprises will do well to consider the vast field open for investment. We have in the State a number of iron banks which have never been worked as yet, and untraversed by railroads. The great Southwest, with its ores and coal side by side, deserves attention. Our legislature should be induced to render the Meramec and Osage Rivers navigable by slack water, and give the manufacturers a cheap means of competing with railroads. With slack water navigation on these streams, iron ore could be delivered at the Carondelet furnaces for \$2 per ton, and leave the owners of the iron mines a profit from 25 to 50 per cent.

Ores for Pittsburgh .- The Pittsburgh Commercial of the 15th inst. says :- The extraordinary advance in the price of iron ore at St. Louis and Cleveland has been the occasion for calling a meeting of iron manufacturers, to be held in this city to-day, to take into consideration the question of a supply of ores for 1873. The Iron Mountain Company have issued a circular advancing their rates nearly one hundred per cent., and there is a corresponding advance demanded for Lake Superior ores. The manufacturers regard these demands as exorbitant, and will meet for the purpose of consulting as to whether the future prospects of the trade will warrant the payment of these prices. The development of our mines of native cres will probably now engage the attention of the furnace owners, as a means to check the rapacity of the mining companies; and should this plan be determined upon, we shall not only witness the utilization of the but the discovery of many new mines in all parts of the country.

L'Anse.-The Marquette Mining Journal says: L'Anse and the North Michigammi iron range is destined to be developed to an extent and with a rapidity heretofore unknown in the Lake Superior iron region. It has, to begin with, a railroad, a good harbor for shipping, and capital and energy and experience to do the work. Persons who are interested in this enterprise claim that by the expiration of three years L'Anse will be shipping as much ore as Marquette is now shipping. As a prospective fact this seems like a startling one, but it may be realized. If tact, energy, and abundant facilities will bring about this result it must come. The docks and shipping facilities at L'Anse are being completed as fast as possible, and the Michigammi and Spurr Mountain Companies are preparing to make the initial shipments from that point larger than the shipments were from Marquette or Escanaba years after both of these points were established. There is truly a propitious future for that locality.

A bill has been introduced in the Massachuetts Legislature for the consolidation of the Fitchburg, Vermont and Massachusetts, and the Troy and Boston Railroad Companies, the consolidated corporation to be called "The Hoosac Tunnel Railroad Company." Including the State interests in the Hoosac Tunnel, the road will form a continuous line from Boston to

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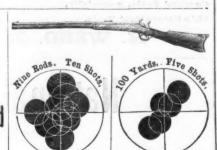
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BIRMINGHAM, ENGLAND

On the Hardening, Tempering, Drawing and Welding of Steel.

FROM "DIE METALLURGIE" OF C. STOEZEL.

CASE HARDENING In many cases it is customary to convert only the surfaces of wrought iron articles into steel, as well as to impart to steel a greater superficial hardening than it receives throughout, so that it may wear better or be better fitted for The process by which this is accomplished is similar to the converting process, but differs essentially from it in one respect: that a carbonization, not penetrating deeply, is accomplished as rapidly as possible. Different materials are used for this purpose, such as animal coal from bones, leather, horn, etc., soot, which contains small amounts of ammonia-salts, substances containing or forming cyanogen, especially yellow prussiate of potash. Of other nitrogenous bodies used, we may mention nitre, urine or excrements of birds, which latter are distinguished for a large amount of urates. A very common process consists in imbed

ding the articles in a sheet iron box in animal coal, either by themselves or with charcoal powder, and then heating them for an hour, either in a simple hearth or in a charcoal fire. and then cooling in water. Quite often the pieces are only covered with the hardening substance. By using yellow prussiate of potash, it is sufficient to heat them to a yellow red heat, to spread the finely pulverized salt upon them, and to cool in water as soon as the former is melted on the surface. If the substances are less easily fusible, it needs a binding material, such as glue-water or beer yeast, in which the tools are first immersed; the hardening powder is then spread upon them, when they are dried and heated to glowing. Rinmann, who made many experiments in case hardening, recommends a mixture of 12 parts of soot, 8 of burned horn, 10 of black flux (obtained by detonating equal parts of cream of tartar and nitre), and 28 parts of chloride of potassium. In Sheffield, Martignoni recommends 5 parts pulverized ox-hoofs, 5 Peruvian bark, 21/2 salt, 21/2 yellow prussiate of potash, 11/4 nitre, 10 green soap. The piece to be hardened is covered with it while red hot, whereupon it is again heated to a dull redness. After this it is cooled in water, annealing being unnecessary. The expensive Peruvian bark, according to Martignoni, serves only as binding material, and might in all cases be replaced by other and cheaper materials. H. Vaughn immerses wrought iron articles into a glowing liquid bath of 25 parts prussiate of potash, 65 parts salt and 10 parts bichromate of potash, to which powdered horn or animal charcoal has been added. The articles are hardened in water. For hardening and annealing steel, he uses a bath consisting of 4 parts prussiate of potash, 12 salt and 2 bichromate of potash. For polished steel, which would be injured otherwise, he replaces the chromate of potash partly or wholly by a mixture of equal parts they use for hardening files, according to Dittmarr, a mixture of 16 parts coal obtained by carbonizing waste from hoofs, horn or leather, 2 oven-soot and one part salt. From this a paste is made by the addition of some clay, water, vinegar or beer yeast. With this paste the files are covered, dried in warm air, heated to a cherry red, and hardened in a solution of salt. They are then pickled in diluted oil of vitriol, brushed and oiled, after having been dried in hot air. Eckmann says that steel obtains a very hard surface if the hardening powder intended to be used is mixed with a solution of arsenious acid in muriatic acid, as then, in glowing, a brilliant white layer of an alloy of iron and arsenic is formed, which is

very little exposed to rusting. Among the many means recommended for ease-hardening, the following deserve mention : Potash and borax. Wrought fron and cast iron can be hardened, according to Johnson, if dipped for a few minutes in a heated condition into a bath of 50 parts fat, 50 oil, 35 charcoal, 25 yellow prussiate of potash, 33 horn and 30 nitre. Karmarsch mentions that the points and edges of tools (pointed hammers, &c.) may be hardened by sticking them, when bright red, for a moment into a paste of 1 part prussiate of potash, 1 part potash, 2 green soap, 2 lard or tallow, and then cooling them in water.

Another recipe, which, however, was known to Agricola (1561), prescribes the dipping of the welding-hot wrought fron into mol'en pig iron, a few moments being sufficient to produce a cementation of the thickness of a line. A similar result may be attained by rubbing over the iron to be hardened, while white hot, with a piece of strongly heated cast fron, or by turning it in filings of gray cast iron and then by cool-

The process of case-hardening has not been confined to small articles, but has also been applied to large ones, such as rails, tires and parts of machines, by cementing them in specially constructed furnaces or in boxes of proper form. This operation requires from 6 to 48 hours, according to the depth to which the carbonization is to penetrate and to the cementing material applied. Recently this method has lost in importance, because most articles are now made of steel, instead of wrought iron. In consequence of a long subjugation to great heat, case-hardened articles assume a coarse, crystalline texture and then get brittle. This change, according to Carre, can be obviated entirely if the articles, when withdrawn from the cementation-boxes, are heated as quickly as possible to the highest temperature which they attained by comentation, and then allowed to cool in the air. The hardening is then accomplished in the ordinary manner.

DRAWING OF STEEL. If steel is drawn down at a proper temperature and skillfully, a certain form corresponding to a further application may be given to it, while, at the same time, its quality can be materially improved. By hammering, the grain be-

comes firmer, the density increases, and, in fact, the steel attains only in consequence of these considerable increase of the specific weight. hammering in the heat, and 7.87 after hammering cold. Caron has shown that, aside from these physical changes, chemical changes over into the combined state, and that thus a similar, only not so complete, a change takes place as in hardening. Caron analyzed three specimens of cementation-steel, of which the first had been directly withdrawn from the converting-chest, the second hammered for some time, and the third hardened. After having been treated in the same manner with muriatic

grammes		
Cementation steel from the sisted of	e converting-ch	1 624
These residues conta	ined—	
Not Hammered. Carbon	Hammered. 0.560 0.445 0.238	Hardened Steel. trace trace 0°240
1.624	1.948	0.340

Rolled steel contained a more considerable esidue than that which had been hammered; the annealing resulted in this case in an action opposite to that of hammering and hardening, and yielded the more uncombined carbon the onger the heating had lasted.

As to the temperature at which steel is to be drawn down, it depends upon its chemical composition. Several brands, especially those rich in carbon, bear only a comparatively low temperature, which must only reach brown red, and which requires, therefore, much care and patience, while a higher heat can be applied for the brands approaching more the wrought iron. If the temperature falls below a certain limit, the difficulties of the drawing down become always greater, especially with thick pieces, and flaws are easily produced. For these reasons it is not only necessary to determine the temperature for every kind of steel, at which it will draw down best, but also to treat the material rapidly and uniformly. In most cases tilt-hamners are used, making 400 blows in the minute; for larger pieces, as wheel bands, heavy steam hammers or, in lieu thereof, powerful rollers and hydraulic press hammers, are employed. The latter two contrivances offer an advantage, inasmuch as they exert a more uniform pressure, communicating itself to the in-terior, whereas, by the short blows of a hammer the surface is more drawn down than the center, as may be easily observed at the concave form of the ends of cylindrica! pieces thus

treated. Although the hammering of steel in the cold state offers particular difficulties, it is nevertheless applied for various hardened, as well as not hardened articles, because their density, hardness, tenacity and elasticity is thereby considerably increased. The hammering in the cold is, for instance, used for watch springs annealed blue, for the edges of scythes and sickles, partly in their manufacture, partly by the reapers themselves, when they beat them out with a small hammer before sharpening again, it is done with the edges of razors, fine chisels, etc. Articles are also hammered cold, in order to straighten them, but is is evident that in all these cases the work must be done very care fully, and that only a very gradual, and only to small distances, extending motion of the steel

nolecules can take place.

THE WELDING OF STEET. The property of weldability, as well known, is possessed by wrought iron-not, however, by pig fron; hence it is evident that steel must exhibit a very different deportment in this respect, according as it approaches in its composition the one or the other. Many kinds of steel of a low percentage of carbon weld almost as easily as wrought iron; others of s higher percentage weld with more difficulty; while, finally, pig iron, which is rich in carbon and for which the degree of softening and that of melting are near each other, can either not be welded at all, or only by particular means Not only does the absolute amount of car-bon in the steel determine weldability, but also the manner in which it is distributed through it. Crude steel and steel of ce mentation weld easier than cast steel which is prepared from the former by remelting, although this latter has rather undergone a diminution than an increase of the amount of carbon. Cast steel gains for the same reason in weldability, when made to glow for some time under exclusion of air and then allowed to cool slowly, whereby, as well known, a partial separation of chemically combined carbon takes

Steel requires a lower welding heat than wrought iron, but if exposed to too high a temperature it burns, and, in consequence, becomes so friable that it breaks to pieces when hammered. This circumstance is to be taken into consideration in welding steel and wrought fron, which is so often done with tools, anvils, rails, etc. This operation is partly executed in order to produce the articles cheaper, partly to give to the parts most exposed to wear the hardness of steel, and to others the tenacity and infrangibility of wrought iron. In this case the wrought iron is first placed into the fire, or both are heated separately, beside, particular fluxes are applied for the purpose of pro tecting the steel from burning and to facilitate the unification of the various materials. The most essential conditions to be fulfilled in welding is, that the pieces to be welded possess a pure metallic surface, and that they be properly formed in the first instance, so that they * Translated for The Iron Age, by Dr. Adolph Ott. | may be united without delay. Where it can be no fatty matter present:

done, they are put together as well as possible before they are placed in the fire. The steel must operations the highest degree of tenacity and be heated as rapidly as possible and excluded solidity, as may readily be witnessed by the from the air, best with charcoal and good coke, changed appearance of the fraction of unham- since coals, on account of the fact that they conmered and hammered steel, as well as by the tain sulphur, produce a thin layer of sulphate of iron, which prevents proper welding. In or-The latter was, according to Schafhantl, 7008 der that the parts to be welded may remain pure when the steel was not hammered, 7.767 after in the fire, they are covered with a proper material, which forms a liquid, protective layer, and, at the same time, dissolves the oxide. For this purpose sand or clay is used, by spreading take place, since free carbon passes them upon the parts in form of a paste; the operation succeeds much surer and easier with less fusible coverings. For cast steel, ground glass, heavy spar or anhydrous molten borax serve well. Hustig says that for English cast steel common builders' mortar may be used, or, in lieu thereof, a mixture of clay and sand.

Aside from these more simple means, special welding powders are employed, the composiacid, it was found that the residue of 100 tion of which permits the formation of an easily fusible slag, which at the same time acts as a carbonizing material. Among the mixtures recommended we mention the following: 64 parts borax, 20 parts sal-ammoniae, 10 parts yellow prussiate of potash, 5 colophony. These ingredients are heated with 1/4 litre water and some alcohol, until dry. But, since during boiling, borax and sal-ammoniac are converted into oracic acid and common salt, and since the colophony gives formation to a carbonaceous layer, rather preventing the welding, Th. Rust ommends 41.5 parts boracic acid, 8.5 salt, 15.5 prussiate of potash, 8 calcined soda.

Habich prescribes 7 anhydrous prussiate of potash, 2 calcined soda, and more or less burned borax, according to the nature of the steel. Ermer recommends, to dissolve in water. borax, 1 sal-ammoniac, 1 yellow prussiate of potash, and to evaporate the solution at a low heat to dryness. When strongly heated, violent explosions may occur by the formation of chloride of nitrogen. Another method is as follows: Borax is fused with 1-10th of its weight sal-ammoniac, and to the vitreous mass same quantity of burned lime is added. Still the another employs 8 parts heavy spar, 1 gall of glass, and 1 black oxide of manganese.

In welding, at first, light, then heavy blows are given, so that the slag may escape from the joints, whereupon the outer surfaces are united. Instead of ordinary hammers, rollers or hydraulic presses are sometimes used. It may finally be mentioned that the coating of large wrought iron articles with steel is also accomplished by casting steel around them in proper

The Dormoy Rabble in Scotland.

Experiments made in this country with the Dormoy rotary rabble have not been attended with results altogether satisfactory, but in Great Britain, as well as on the Continent of Europe, it seems to be held in high esteem. We take the following from the London Mining

At the North British Ironworks, Coatbridge, which were built about four years ago, by Mr. Thomas Ellis, there are several features worthy of notice. Mr. Ellis is himself the inventor of a new modification of the ordinary puddling furnace used at his works, and he has been the first to undertake the development in Scotland of M. Dormoy's patent revolving rabble. The two puddling furnaces erected on Dormoy's plan have so far proved highly successful, although, as they have only been about three months in operation, their full merits have not yet been scertained. Apart from the relief gained to the puddler by the use of a revolving rabble, the system is also credited with the following advantages:

1. A great improvement in the quality of the

ron produced. A great diminution in the number of ruin-ous "cobblers," or "wasters."

3. The capability of working up very gray, or also inferior kinds of pig, without using any "fined metal."

4. A diminution of loss in mill scale between

Briefly stated, Dormoy's patent consists of a mmon belt, driven from shafting about 6 ft. above the furnace, which rotates the shieve, loosely jointed at one end to the puddling rabble, and at the other turning on a pin, held in he muddler. at from 700 to 800 revolutions per minute for white pig, and 800 to 1000 for gray metal. We understand that Mr. Ellis is so satisfied with the results of the revolving rabble, and has so recommended its merits to others, that it is in contemplation to attach it to other furnaces in the Coatbridge district. Workmen are apt to grumble at innovations, and puddlers are said to be particularly unreasonable in this respect, but there can only be one opinion as to the relief which the use of a rabble affords to the hardest labor voluntarily undertaken by manthat of hand puddling; and on this ground alone we should expect to see its application nore general.

It has been a long time the practice with horologists to use graphite as a reducer of friction in even the most delicate pieces of mechanism. In blowing engines—if the gearing is copper—graphite is the only lub leation used. These facts have led to the simple experiment of ascertaining the effect of a mixture of graphite prepared by decantation and hog's lard, first in the stuffing box of a pumping engine, and subsequently upon a steam engine. The result proved to be very satisfactory in this case, the only especial care requisite being to keep up the necessary quantity of graphite in the mixture, as otherwise it becomes too fluid. In another experiment, in which a paste of graphite and water was employed, the result proved equally effective; the slight escape of steam into the stuffing box was sufficient to keep the graphite in a moist condition, and the lubrica-tion seemed quite perfect, although there was

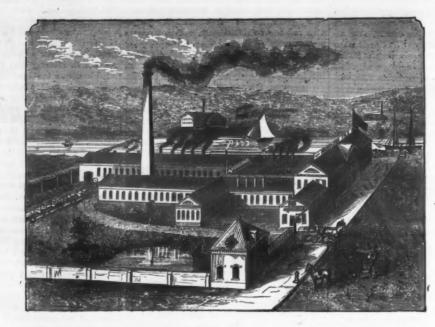
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NICHOLSON FILE CO.,

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BOXES OF ONE DOZEN EACH 日田日



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NICHOLSON FILE COMPANY,

Providence, R. I.

PENNSYLVANIA FILE WORKS.



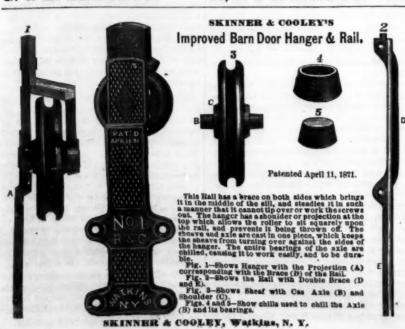
McCAFFREY & BROTHER, Manufacturers of FIRST QUALITY FILES and RASPS ONLY, No. 1732 North Fourth Street, Philadelphia Pa.

Black Diamond File Works.



G. & H. BARNETT.

39, 41 & 43 Richmond St. Phila.



WILLIAMS WHITE & CHURCHILL

IMACKRELL & RICHARDSON MFG. COMPANY,

Builders' Hardware, Locks, Hinges, Hooks and Staples,

Awning Hooks, Meat Hooks, Pincers, Champion Noiseless Pulleys, CHAIN PULLEYS, &c.

Factory, cor. Flushing and Nostrand Avenues BROOKLYN. Warehouse, 73 Warren St., N. Y.

J. W. H. SMITH & CO., uccessors to SMITH, ELSTON & CO. CHARLOTTE, MICH

Fork, Hoe, Rake, Shovel, Broom & "D" Handles & Lumber.

First-Class Goods made from best White Ash Goods suitable for California, Australia and Euro pean trade made to order and packed for Ocear transportation. All goods warranted satisfactory

OSCAR BARNETT, Hardware & Machinery

Gray Iron Foundries & Machine Works Hamilton, McWhorter and Bruen Streets.

Malleable Iron Works, N. J. R. R. Avenue, corner Johason Street

Store-34 and 36 McWhorter Street, NEWARK, N. Malleable Iron Castings, from AIR FUR-NACE or Cupela, furnished to order.

Small Gray Iron Castings, soft and smooth. Brass Moulders' Flasks, Cabinet and Concl ESTABLISHED 1845

TACKLE BLOCKS. BURR & CO.

Manufacturers of Waterman and Russel's PATENT IRON STRAPPED BLOCKS ALSO, WANDPACTURERS OF

ROPE STRAPPED BLOCKS, SI PECK SLIP NEW YORK.

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Manufacturers' Agent, 563 Market Street,

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LANE, GALE SOLE AGENTS

TROY WRO'T BUTT CO.S Wrought Iron Butts (Riveted Pin). THE EAGLE SQUARE CO.'S Steel and Iron Squares.

E. F. HURD'S AXES, HATCHETS, ADZES, &c., &c.

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ACENTS FOR

BURDEN'S HORSE and MULE SHOES.

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SCOVIL MFG. CO.'S BRASS BUTTS.

J. M. KING'S STOCKS & DIES.

McCREA'S SHOE THREADS and TWINES.

G. F. ELLS' CURRY, CATTLE and PLANTATION CARDS. ENAMELED and TIN WARE, &c., &c., &c.

TROY, N. Y.

Bradley's Edge Tools.

Bush Hooks, all patterns, Furpentine Tools, all kinds, Coopers' Tools, a specialty, Ship Carpenters' Tools,

Grub, Garden & Planters' Hoes, Mill Picks, Mattocks & Picks, Box Scrapers & Chisels, Cotton Hooks & Samplers.

N. WEED, 37 Chambers St.

National Screw

MANUFACTURERS OF

Patent Dovetailed Slot Gimlet-Pointed

BRASS SCREWS.

COMPLETE ASSORTMENT OF SIZES.

RUSSELL & ERWIN MFG. CO., Sole Agents

45 and 47 Chambers Street, New York.

P. O. Bex 3288.

Orders filled promptly.

E. HALSEY, 76 Reade Street, NEW YORK,

HARDWARE COMMISSION MERCHANT,

AND MANUFACTURERS' & PURCHASING AGENT.

*Quakertown" Handle, Rim & Spoke W'ks,

'Tabal Smelting Works" Babbett Metals, &c.,

'Tabal Frame" Iron Wheel Barrows,

'Waterville Cutlery, Co.," Pen & Pocket Cutlery,

'Bohannan's" Brass Switch, Padiocks, &c.,

'Eureka" Counter, Spring Balances & Gro. Scales.

J. D. FARRINGTON, Jr.,

24 & 26 Murray St., and 27 Park Place, cor. of Church St., New York Proprietor of the Works of the late

Heath & Smith Manufacturing Co., MANUFACTURER OF

Japanned, Plain and Stamped Tin Ware. And Importer of HOUSE FURNISHING HARDWARE.

Self-Righting Cuspadore.

TURNER, SEYMOUR & JUDDS.

Hardware and Upholsterers' Brass Goods.

L. L. Davis' Patent Levels, Stevens' Calipers and Dividers, Page's Auxiliary Jaws.

Manufacturers of Judds', Prindle's and Combination Patent Curtain Fixtures, Locks and Curtis' Patent Raisin Seeder, Patent Twine Boxes, Picture Nails and Hooks, Escutcheon Pins, Coat and Hat Hooks; also Miscellaneous Iron and Brass Goods.

Small Brass and Iron Castings made to order. 64 Duane Street, NEW YORK.

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31 Beekman Street, NEW YORK,

HARDWARE MANUFACTURERS' AGENTS. Barnes & Deltz,

Underhill Edge Tool Co.

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We carry a full stock of the SUPERIOR ENAMELED WARE, manufactured b Alborn, Hartje

Wiley & Co. Also, Hood's Patent Soapstone Sad and Polishing Irons.

JAMES E. HALSEY.

76 Reade Street, N. Y.,

Industry Manuf'g Co.,

Railway, Blacksmiths' and

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Bittering Pans, Ladles, Kettles, &c.

Chain

Pulley

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CHAS. BROMBACHER

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TINSMITHS' TOOLS AND MACHINE

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HARDWARE MERCHANTS.

PAPER BOX MAKERS' DO.,

PRODUCE TRYERS, &C

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THE "WASHOE" TOOL MFG. CO.,

Celebrated "Washoe" Rail Road and Mining Picks



Have constantly on hand a large supply of COAL, RAIL ROAD AND CALIFORNIA OR MINERS' PICKS. We claim that OUR PRICES ARE LOWER d our picks are SUPERIOR to any thing in this country. Liberal discount to large dealers. Send for price list.

Post Office Box 3170.

New York Office, 61 and 63 Park Place and 5 College Place.

H. H. TRENOR, Treasurer.



BELT PUNCH, KNIFE AND AWL,

Also, Needle for Lacing Rubber Belling, so combined that each tool does its specific work and not interfere with either of the others

E. C. C. KELLOGG & CO., Hartford, Conn. For Sale by Hardware Dealers generally.





Biddle Manufacturing Co., FINE TOOLS

Hardware Specialties.

We call the attention of Carriage Makers, Machinists, Iron Railing Manufacturers, Blacksmiths, and all others interested in Drilling, Punching or Cutting Iron,

Improved Drill Press, Shear & Punch,

feeling assured that upon examination their merits must be apparent to every one, from the fact that they possess the essential characteristics of strength, power and cheapness, in a high degree. Illustrated Catalogues and Price Lists furnished on application.

We are also prepared to furnish light work of any description and in any quantity to order.

All kinds of Die Forgings promptly attended to. OFFICE & WAREROOMS, 78 Chambers Street, New York.

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PRINCIPAL OFFICES,

Birmingham, England, Nos. 66 & 67 Parade. Sheffield, England, No. 23 Westfield Terrace. New York, U. S., Nos. 47 John and 5 Dutch St. BRANCH OFFICES,

Philadelphia, Cincinnati, New Orleans and Montreal.

Shipping Office. Middleton Building, No. 1 Rumford St., Liverpool.

ALFRED FIELD & CO., VAN WART, SON & CO.

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VAN WART & McCOY,

43 Chambers Street, New York. GEORGE H. GRAY & DANFORTH,

> 48 India Street, Boston. F. W. TILTON.

17 Old Levee Street, New Orleans,
At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, including all new descriptions. Sole Agents for the John Rimmer & Son's Celebrated Harness and other Needles.

OSCAR IRVING VAN WART & Co., FORWARDING AGENTS,

2 South John Street, LIVERPOOL,

BIRMINGHAM, ENG. Agents and Sample Rooms.

New York-Edward Frith, 16 Cliff Street. Boston-H. L. Richards, 18 Batterymarch,

New Orleans-R. Rhodes, 71 Camp Street.

BUSINESS ITEMS.

NEW YORK.

The Maxim Gas Machine Company, capital \$200,000, organized in 1868, manufactory at Paterson, N. J., have perfected the machine, and established a branch company on the Pacific coast, with a capital of \$250,000, which has furnished several towns in Califor. nia with them. These machines are made in various sizes, of from 30 to any number of lights required. The gas is made from gasoline, by the application of heat.

Mining operations have again commenced at the Erie Lead Mine at Guymard. The ore is now worked for zinc alone, in which it is very rich.

The Continental Iron Works, Greenpoint, T. F. Rowland, proprietor, are now making extensive additions and alterations. A new building, two stories high, has been erected, of which the dimensions are 100 by 50 feet, and an addition has been made to the foundry 100 by 75 feet. These works employ 600 men, in the erection of gas works, building of iron vessels, and the manufacture of specialties, such as steam yachts, &c.

PENNSYLVANIA.

The Lebanon Manufacturing Company's works were burned on the 7th inst. The loss is \$75,000; insured.

The greater portion of the territory containing the iron ore recently discovered near Free burg, Snyder county, has been leased by the Messrs. Cruikshanks, who will erect blast furnaces at an early day.

The Jackson Iron Company, of Sharon, will hereafter be known as the Stewart Iron Company, in honor of the president.

Messrs. Jackson & Jacobs have leased the colling mill part of the old Snowden foundry and machine shops, in Brownsville, and will soon commence the manufacture of iron. They expect to employ 40 or 50 men, and will turn out from 8 to 10 tons of iron per day.

The Lehigh Coal and Navigation Company are taking into consideration the erection of extensive machine shops, and, if they build, it is thought Mauch Chunk will be the place selected for them.

The repairs to the North Penn Furnace Bingen, are nearly all made. The stack has

been built 30 feet higher and cased with iron. The Mount Laurel furnace is being converted into an anthracite furnace. When this furnace was first erected, 25 years ago, the stack was built so as to be able to adapt it at any time to the purpose of an anthracite furnace, and three uyere arches of the proper size were construct-

The stack has been run up to a hight of 50 feet. The furnace will be 11 feet in size in the boshes, and will have a capacity of from 100 to 125 tons of iron per week.

The Pittsburgh Forge and Iron Co.'s mills which have been stopped since Christmas for necessary repairs, commenced operations Monday, 6th inst., double turn. Their steam forge owing to pressure of orders for car axles and forgings, only stopped for Christmas and New Year's days.

The Commercial Colliery, at New Philadel phia, operated by the Philadelphia and Reading Coal and Iron Company, was burned on the 6th inst. Loss, \$50,000; insured.

Shoenberger & Co., Pittsburgh, intend to build 100 coke ovens in the spring on their coal land near Latrobe, on the Pennsylvania Rail-

Thirty thousand dollars has been subscribed toward a new blast furnace, to be erected in the vicinity of Bath.

Lewis, Oliver & Phillps, Pittsburgh, have purchased, at Beatty's Station, on the Pennsylvania Railroad, several tracts of coal land, which aggregate 1200 acres.

Glendon, in the Lehigh Valley, is soon to have new blast furnace.

The Harrisburg Telegraph claims that the Baldwin Steel Works in that city has more than once beaten the big day's work of the steel works of the Cambria Iron Company, at Johns own. It says: On December 12th, 1870, the Baldwin works made 16 heats in 12 hours, and on February 6th, 1871, they got out 18 heats in 12 hours, producing 195,744 pounds of rail steel. In October last they made 17 heats in 11 hours, producing 194,291 pounds of steel-this on the 16th, while on the 21st they accomplished the incredible feat of making 32 heats in 22 hours, thereby producing 363,406 pounds of steel. On everal other occasions have 16 heats been made in 12 hours or less.

An iron furnace is soon to be built at McVey-

The engines of the steamship Pennsylvania are finished, and Messrs. William Cramp & Sons commenced to place them in the steamer on the

Messrs. James Wood & Co., have recently sold their nut, bolt and tube works in South Pittaburgh to a new firm, of which Messrs. Nimick & Co. and Lewis, Oliver & Phillips are prominent members. The new company took ssession the 1st of January, 1873, and will shortly commence operations.

MASSACHUSETTS.

The Dighton Furnace Company, of North Dighton, in addition to their "Webster hot-air furnace," make a great variety of cooking and parlor stoves, ranges, all kinds of wrought iron pipe, etc. Their annual sales amount to about

The Sheffield Manufacturing Company have completed their new foundry buildings, and commenced operations with a partial force.

A stock company will soon be formed at Shelburne Falls to manufacture the new locks invented by Major Henry Winn.

Pevey Bros., Lowell, manufacture machinery eastings, furnace grates, window weights, etc. They employ 40 hands.

Messrs. Fearing, Rodman & Swift's Standard Chain Works, East Bridgewater, manufacture Montreal-J. J. Evans 14 St., John Street, | chain cables of all descriptions. They are now | mated at nearly \$300,000,000.

making from 15 to 20 tons per week, from 1/6 inch to 2 inch iron. About 25 hands are em-

The American Bolt Company, Lowell, employ 100 hands and turn out 40,000 bolts per day. The machine which "puts a head on" the bolts is said to be one of the best ever invented. They also run 12 presses on nuts, washers and chain links.

Buck Bros., Milbury, have recently added a new grinding and polishing shop to their works. It is light and roomy, and will greatly conduce to the health and comfort of their workmen-their chief motive in constructing it. They have room for 10 grinders and as many polishers.

CONNECTICUT.

The Thomaston Clock Works have just sent to Ohio a clock 6 ft. high, 6 ft. wide and 4 ft. deep, costing \$2500. The pendulum is 14 ft. long, and the pendulum ball weighs 300 pounds. The weights weigh over 1000 pounds each. The works are to be set in the lower story of the building, while the hands and dial are placed in a high tower. The gas that illuminates the dial will be turned on and off by the motion of the clock.

VERMONT.

The building known as the Iron and Steel Works, at St. Albans, is enclosed, and gangs of men are busy placing within the machinery as fast as the weather will permit,

оню.

The new stock house of the Franklin Iron Company, Columbus, erected on the site of the one which tumbled down on the 27th of October, is ready to receive the roof.

The blast furnace of Wm. Ward, Niles, which had been in operation since November 11, 1870, blew out with the close of the old year, for repairs, which will be made forthwith.

The new furnace at Stony Hollow has started accessfully.

Columbus has a new rail mill, which proves to be a good manufacturing investment. The American Wrench Manufacturing Com-

pany, Cleveland, are doing a prosperous busi-They make several styles of wrenches of different sizes, all of which combine simplicity, strength, and utility. They are much stronger than the ordinary wrench, and can be furnished at much less cost.

The Stark Manufacturing Company has lately been formed at Alliance, and the works are now in operation. The concern is incorporated and commences business on a substantial basis. The company are making machinists' tools, embracing lathes, planers, drills, gear cutters, &c. Their location gives them special advan-

tages in the way of shipping and coal supplies.

The new enterprise, at Columbus, the Sterling Car Wheel Foundry, is meeting with good

KANSAS.

The King Iron Bridge Manufactory and Iron Wotks of Iola, finding their orders increasing beyond their capacity to manufacture, and also that the facilities for transportation at Iola were inadequate, reorganized the past summer by incorporating the King Bridge Company, of Topeka, and immediately commenced the construction of shops on a grand scale. The foundry is 76x146 feet, is 22 feet high in the clear, contains two cupolas with stack 80 feet high, and will run twelve tons of iron per day. Adoining this on the north is the machine shop, 80x158 feet and two stories high, the second story to be used for a pattern shop. The lower story will contain two steam engines of forty horse-power each. Immediately beyond this is the blacksmith shop, of same size as foundry; while, off the machine shop, to the east, giving the whole building the shape of the letter T, is the arch shop, 125x300 feet, through which crosses a railroad track, running over two of Fairbank's scales, of the capacity of 35 tons each. This shop will contain all the machinery for completing the bridges, including heavy shears, punches, etc. It is proposed to build the King Patent Bridge, used for highways only, which is made entirely of iron; the Pratt Truss bridge (iron) for highways and railroads; the Howe Truss Combination, which is of wood and iron, all the members that bear strains of compression being of wood, while those that bear strains of tension are made of iron; and, in short, any required pattern, beside iron piers, both cast and wrought, and all kinds of heavy castings generally.

Preston & Co., a Missouri iron firm, have purchased about eight hundred acres of coal lands on the line of the Latrobe and Ligonier Railroad, and will begin the manufacture of coke as soon as the road is ready for carrying freight. Frank Cowan's Paper says the firm will probably erect iron works on their territory.

NEW JERSEY.

The discoveries of iron near Schooley's Mountain are being utilized by enterprising fron dealers, who have recently made extensive purchases of land in the vicinity.

GEORGIA.

Very rich iron ore has been discovered at

Dalton.

MICHIGAN.

The Bangor Furnace Company, Van Buren county, have commenced casting pig iron-25 tons a day.

The Cascade Iron Company has one of the

finest and largest charcoal furnaces in the world, located at Pittsburgh, a new settlement two miles north of Escanaba. The mason work is of Milwaukee brick and the stack of iron. This company is composed of Pittsburgh, Pa., gentlemen, and has, in connection with the furnace, from 5000 to 6000 acres of hard wood timber lands, and is building a large number of charcoal kilns of the latest designs.

The entire product of the lead mines in Wisconsin, since they were first opened, is estiSaws.

H. W. PEACE,

SAWS OF ALL KINDS. TABLE

FACTORY, WILLIAMSBURGH, N. Y.

AMERICAN SAW CO.



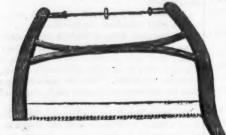


Factory, Trenton N. J.

Also, SOLID SAWS OF ALL KINDS. Office, No. 1 Ferry St., cor. Gold St. N. Y

Hankins' Elliptic Forked Saw Frame.

Patented June 29th, 1970.



The annexed engraving represents HANKINS ELLIPTIC FORKED SAW FRAME, 'which com mends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any centre bolt, secures for the Frame great strength and durability.

These Frames are put up with my best Webs, marked "No. 40, Harvey W. Pence

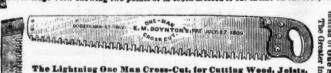
HARVEY W. PEACE

VULCAN SAW WORKS,

WILLIAMSBURGH, N. Y.

BOYNTON'S LICHTNING SAWS.

Front Edge View showing two points of M tooth dressed to cut in line on one side, and two on the other



The Lightning One Man Cross-Cut, for Cutting Wood, Joists, Logs and Timber, and Sawing Down Trees. The Lightning Saw has been awarded the American Institute Medal, 1872.

The Lightning Saw has been awarded the A merican Institute Medal, 1872.

The superiority of the Lightning Saw over all others is now eatably a saw in competition with them at the American Institute or elsewhere; and the state of the course of the course

E. M. BOYNTON,

Sole Proprietor and Manufacturer,

80 Beekman St., New York

LLOYD, SUPPLEE & WALTON,

WHOLESALE

HARDWARE HOUSE,

HARDWARE FACTORS.

BATES' MANUFACTURING CO.'S GOODS.

Bonney's Pat. Hollow Augers & Spoke Trimmers.

Bonney's Patent Double-Edged Spoke Shave. Bonney's Patent Adjustable Gate Hinge.

Bonney's Patent Sash-Fast and Lamp Bracket.

625 Market Street, PHILADELPHIA.

Cutlery.

Landers, Frary & Clark,

General Hardware,

53 CHAMBERS ST., N. Y.

HENRY DICKINSON, Sheffield Cutlery, Files, &c.,

66 & 68 READE STREET (near Broadway), NEW YORK.

Manufactory, SHEFFIELD, ENGLAND.

Isaac Milner's Fine Pocket and Table Cutlery. Howard Bro.'s Medium Pocket Cutlery. J. B. Osberton & Co.'s Medium Table Cutlery. Isaac Milner's Razors, Butcher and Hunting Knives. Hargreaves, Smith & Co.'s "Imperial" Files. Milner's ", " and Collins' "IXL" Hand Saws.

Notice of Removal. ASLINE WARD,

Prom 54 Beekman St. to No. 191 and 103 Duane St., N. Y. REPRESENTING

GEO. WOSTENHOLM & SON CUTLERY AND RAZORS; WASHINGTON WORKS, SHEFFIELD.



ED'K WARD & CO., SHEFFIELD, OUTLERY & TABLE MNIVES. CORPORATE MARK.





CORPORATE MARK

Joseph Rodgers & Sons CELEBRATED CUTLERY.

No. 82 Chambers Street, New York. CHARLES PEACE, Jr., Agent.

The demand for Joseph Redgers & Sons roductions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam Power. To distinguish Articles of Joseph Rodgers

& Sons' Manufacture, please to see that they bear their Corporate Mark.

JOSEPH S. FISHER, No. 411 Commerce St., PHILADELPHIA,
AGENT FOR

George Wostenholm & Son, Washington Works, SHEFFIELD, Celebrated I-XL Cutlery, Razors,&c

SOLE AGENT FOR THE UNITED STATES OF WALTER SPENCER & CO., Steel and File Manufacturers,

Corporate Mark

N SPENCER ROTHERHAM

Granted 1777.

RICHARD A. TURNOR, 37 Chambers St., New York,

Agent for F. W. HARROLD,

Hardware Commission Merchant, BIRMINGHAM.

JOSEPH ELLIOT & SONS, Manufacturers of Razors, Table Knives, &c., SHEFFIELD.

ESTABLISHED 1852.

NEW YORK KNIFE CO. MANUFACTURERS OF SUPERIOR

Table & Pocket Cutlery WARRANTED TO BE MADE OF THE BEST

WALKILL RIVER WORKS,

Walden, Orange Co., New York.

THOS J. BRADLEY, President.

The Miller Bros. Cutlery Company

FINE PEN AND POCKET CUTLERY,

WEST MERIDEN, CONN. We warrant our Knives equal in cutting qualiti-and workmanship to any made. We also make SILVER PLATED POCKET KNIVES, which will not rust or become discolored when used as a Fruit Knite, and their cutting qualities are equal to any other Knite.

CLARK, WILSON & CO., Agents, 81 Beckman Street NEW YORK

H. CARTER & SON, 290 PEARL ST., NEW YORK.



Manufacturers of and dealers in all descriptions of Molders' and Plasterers' Tools, and dealers in General Hardware, Gilded Copper Weather Vanes, CARTER'S PATENT CARRIAGE LIFTING JACK, &c

Ornamental Wood Co. Excelsior Saw Works.

Bridgeport, Conn.

MANUPACTURERS OF

Cabinet Ornaments and Trimmings

Natural Woods,

in great variety of form,

Knobs,

Panel and Tablet Ornaments,

Drawer Pulls, Medallions, Resettes, LION HEADS, JEWEL'BOXES, SLEEVE

Door Knobs, Escutcheons, Shutter

. BUTTONS, etc., etc.

A new Illustrated Catalogue and Price List will soon be out for 1873, containing many new designs useful to the trade. This Company has no offices other than at factory, Bridgeport, Conn., and No. 5 West street, London, England,

Saws.

WHEELER, MADDEN

CLEMSON

Manufacturers of Warranted Cast Steel

OF EVERY DESCRIPTION

including

Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and

other Wood Saws,

&c., &c.

CAST STEEL FILES of the well-known brand of

WHEELER, MADDEN & CLEMSON.

FACTORIES:

Middletown, Orange Co., N. V.

BRANCH OFFICE :

97 Chambers Street. New York.

Brundage Forged Horse Nails, Manufactured from

BEST NORWAY IRON,

by BRUNDAGE & CO. Sold by Wheeler Madden & Clemson,

MIODLETOWN, ORANGE CO., N. Y.

LIVINGSTON'S PATENT BRACED

WOOD SAWS Pat. BUTCHER & KITCHEN SAWS

Recognized Standard Goods for durability, quality and finish.

For sale by the Hardware Trade and T. F. Cheritree & Co., New York.



EVENNESS OF TEMPER. The peculiar structure of our furnace subjects all irts of the saw to a DEAD heat, and when dipped in e oil bath secures periect uniformity. PERFECT ACCURACY IN THICKNESS. Our saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the

PROPERLY HAMMERED.

Great care is taken that no saw shall leave our works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, can not be successfully run-hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of This department is under the personal supervision of our Senlor, who has devoted over tessity sear to the art of saw making.
We are sole proprietors and manufacturers of the celebrated "Clipper" Cross-Cut Saw. Price Lints of all kinds of saws sent on application.

OHLEN & LANMAN.

515 Cherry St., Philadelphia.

WM. McNIECE, Manufacturer of

Superior Cast Steel Hand, Panel, Ripping, Ice, Compass, Hack, Butchers' Bow, Grafting, Pruning,

Keyhole and Web Saws, Mowing Knives, Trunk Springs, and all other kinds of Springs, made from Sheet Cast Steel.



H. Croft's Scientific Concave and Convex Razor Strop

Is perhaps the only Strop manufactured on a strictly scientific principle. By a few passes over the Strop the Razor is enabled to pass through the hardest beard with ease, and is highly recommended by Barbers and all Scientific Men who have used it, and do cheerfully recommend it to be the best Strop that is sold in the market. The attention of desicrs is solicited to this Strop, and wholes, he was can have, on application, a sample Strop sent see of charge on application to the Patentse at Springfless, Ohle.

mardware.



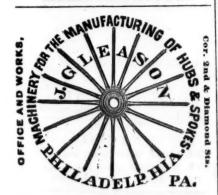
We call particular attention to our new Patent Ferrule, with its Supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

WALSH, COULTER & FLAGLER, 83 Chambers and 65 Reade Sts., New York, AMERICAN AND FOREIGN HARDWARE,

SOLE AGENTS FOR THE SALE OF

JOHN ROTHERY'S CELEBRATED FILES. Walden Co-operative Knife SUPERIOR POCKET CUTLERY.



REMOVAL.

We have removed from No. 68 Beekman to the new and commodious store, No. 101 & 103 Duane Street, near Broad way, where will be found our usual assortment GUNS, PISTOLS, CUTLERY FISHING TACKLE,

And Sporting Articles of every description Agents for

Alexander's Pocket Cutlery. J. W. Court's Fish Hooks, * Union Repeating Pistols. W. & S. Horrabin Pocket Cutlery. Sheffield, Eng. BARTON, ALEXANDER & WALLER 101 4 103 Drane St., New York.

1872

for the Year.

[CONTINUED.]

JULY 4.-The close of the first half of the year naturally suggests a consideration of the changes that have taken place during that time. We think we are safe in saying that never before was there such an extraordinary state of things in the metal industries of both America and Europe as exists to-day. That in the United States, Great Britain and Germany, such great activity should simultaneously prevail is very remarkable, especially as the causes in each ase seem to be to a great extent distinct. If iron continues to rule high, as there is now every indication that it will for many months, we see no prospect of any material decline in staple goods during the ensuing season; while it is almost certain there will be a good many advances. The changes taking effect on the 1st instant are not very numerous. Iron and Tinned Rivets are now discount 25 instead of 331/2 per cent. The discount on Coal Hods has been reduced 5 per cent., being now 40 per cent. on Japanned and 30 per cent. on Galvanized. Ely's Percussion Caps have been advanced 3d. per M on the other side, and here the prices have been advanced 71/4 cents per M. quote, E. B., 1-4s, 671/2 cents 1-10s., 75 cents; Double Water Proof, 1-4s, \$1.571/2; 1.10s, \$1.65; Colt's 1-4s, 821/2 cents, 1-10s, 90 cents. Trace Chains, 65 cents, gold, for 61/2-10-2, and 70 cents, gold, for 7-10-2. Washington Mills Emery is now 7 cents for regular numbers, and 5 cents for Flour. Myers "Fashion" Fluter and Ruffler is now \$3 instead of \$3.50. Ames' Butcher and Shoe Knives are now discount 15 per cent. The manufacturers' price of Stocks and Dies has been advanced to discount 20 per cent. We quote them from stock in New York discount 15 to 10 and 10 per cent. Mann's Patent Metallic Sieves have been advanced 50 cents per dozen. Mallory, Wheeler & Co., under date of July 1st, issued a revised list of Padlocks, equalizing prices without materially advancing or reducing the cost of goods. The discount on Padlocks and Padlock Keys remains 40 per cent. They also add prices of a number of new Locks and Latches, the dis-count on which remains 45 per cent. We print their price list of Padlocks and new goods. Alfred Field & Co., in a circular dated July 1, note the following advances in leading English goods. Fire Irons have advanced about 25 per cent. on old prices. Curry Combs, average advance about 25 per cent.; one maker has advanced 40 per cent. All orders received after June 8th are subject to "times price." Padlocks have advanced from 10 per cent. to 20 per cent. Coil Chain has advanced from 13s. for % to 25s. Traces have advanced from 101/d. for 61/2-10-2 to 1s. 71/4d. Wright's Anvils have advanced from 26s. to 32s. Wilkinson's Anvils have advanced from 24s. 6d. to 30s. Wright's Vises, solid box, have advanced from 4d. per lb., less 10 per cent., to 41d., net. Fry Pans, hammered, have advanced from 721/2 per cent. to 50 per cent. discount. Hoes have advanced 20 per cent. and "times price." Waldron's Scythes advanced from 271/2 per cent. to 15 per cent. discount. Brades' Trowels have advanced from 10 per cent. to 5 per cent. discount. Ely's Caps advanced 3d. per M. Ely's Gray Edge Wads advanced 4d. per M. Guns. advanced from 1s. 6d. to 10s., according to price. Bake Pans now 221/4 per cent. discount. The latest information states that the present advance on nearly all patterns of Curry Combs is 40 per JULY 11.-The usual midsummer dullness

prevails, and some houses complain that so far the sales for this month fall short of the same period last year. The state of the German Hardware market is unimproved since our last writing. Recent advices state that no compromise with the workmen is possible under existing circumstances. The market for all classes of Hardware is decidedly firm. Peter Wright's Anvils have advanced; they are now quoted at 34s., and are firm here at 12 cents, gold. Addis's Carving Tools have advanced about 25 per cent. ; Wilson's Butcher Knives have advanced 5 per cent. Nails are firm at \$5.75 rates. At a meeting of the Vise and Tool Association, held in Philadelphia on the 24th ult., the following prices were adopted: Solid Box Vises, from 30 to 110 lbs., 16 cents; 111 to 160 lbs.; 17 cents; 160 and over, 20 cents. Steel Faced Hammer advanced 1 cent per lb. Mattocks advanced 75 cents per dozen. Grub Hoes advanced 25 cents perdoz. The advance on Solid Box Vises is about } cent per lb. The prices of Rivets in bulk have advanced one cent per lb., excepting sizes %, 11-32, 5-16, ¼, No. 1, 2, 3, 4, and 1d., 2d., 8d., 4d., 5d., 6d. Cooper's, which have advanced ½c per lb. The discount of one cent per lb. on 6 and 7 lb. Rivets in bulk is discontinued. Gimlet Pointed Coach Screws have been advanced. We print the new list for Rivets in bulk and Coach Screws; the balance of the list is unchanged. At a general meeting of Edge Tool Manufacturers, held at the Cutler's Hall, Sheffield, on the 25th ult., new list prices were adopted, to go into effect on July 1st. We quote Butcher's Edge Tools, \$5.50 to £, gold, new list. This important list was published in our issue of the above date. Joseph Rodgers & Sons have issued a new list for Ivory Table Cutlery, on which they advance 10 per cent.

JULY 18.—The presence of a considerable number of buyers, from the South and West, has relieved the Hardware market of the general dullness which has characterized it for some weeks. A fair business is reported, with firm prices for both foreign and domestic goods, and a general scarcity of staples is noticeable. The

stant; prices remained unchanged, and may be quoted firm. The German importers of this Hunt's Axes \$1 per dozen, the discount remaincity have adopted a new list, being an advance Review of the Hardware Market on the old of from 15 to 25 per cent. This list is only intended to apply to the stock on hand, as it is impossible to foreshadow the issue of the struggle now raging in Europe between capital and labor. Butchers' Light Edge Tools are quoted at \$5, and Heavy do. at \$6 to the £, gold, new list. Lane's Forged Cast Steel Planters' Hoes are advanced to 5 per cent, on list T. F. Cheritree & Co. advise us that the prices of Livingston's Patent Braced Wood Saws, for the coming season, are, for No. 101, 30-inch, \$12; No. 102, "Red Jacket," 30-inch, \$12, and No. 104, "Green Jacket," stamped "E. W. Clark, Cast Steel," \$8 per dozen, net cash. Mason's Blacking has advanced 50 cents per gross for sizes Nos. 1, 2, 3, and \$1 per gross for No. 4. The Stanley Rule and Level Co. issue a discount sheet, under date of July 10, 1872. The following are the present discounts of such articles as have been advanced by the new sheet, viz: Handled Brad Awls, 10 per cent. Sliding T Bevels, 35 per cent; Compass Dividers, 10 per cent.; Bailey's Spoke Shaves, net; Try Squares, 35 per cent. Chalkline Reels and Scratch Awls are both reduced to 25 per cent, off. Cash discount from all the foregoing, 10 per cent., if paid within 30 days. list price of No. 1 Mahogany Plumb and Level (adjustable) is advanced to \$25 per dozen Another style of Bailey's patent Excelsior Block Plane, with handle, is added to the list-price, \$2.50. Also a new pattern of Cabinet makers Clamp, with iron head and jaws. The list prices of Bailey's Smooth Planes (wood) are advanced 50 cents each, the discount remaining as before on the entire list of Iron and Wood Planes.

July 25.-The improved condition of the

Hardware trade mentioned last week continues The most noteworthy features of the week are the advances in Butt Hinges and Screws. The American and National Screw Companies, under date of July 22, advise us of an advance of 25 per cent. on Flat Head and 20 per cent. on Round Head Iron Screws; the discount off Flat Head is now 50 per cent., formerly 60 per cent., and off Round Head, 40 per cent., formerly 50 per cent.; the discount off Flat Head Brass, Fillister Head Iron, and Brass and Iron and Brass Machine Screws remains as before. In their circular they say, "Owing to the prospect of still further advances in Iron, all orders re eived after this date will be subject to prices ruling at time of shipment." The American Screw Co. issue a price list of Taps, which we publish. The manufacturers of Butt Hinges agreed on an advanced list for Broad and Narrow, Loose and Fast Joint Butts. We print the new and old prices; the discounts remain unchanged. The Pump Manufacturers' Association of the United States have issued their quarterly circular, in which they say of their meeting, held in Utica on the 10th instant: "It was agreed that the discounts from list during the previous quarter be retained, viz:" Iron and Brass Cistern and Pitcher Pumps, discount 20 per cent. Well and Set Length and Drive Well Pumps, Iron Force Pumps, Hydraulic Rams and Garden Engines, discount 15 per cent. The Nail Manufacturers', at their meeting in Boston on the 17th instant, made no change in prices. We quote 10d to 60d common, \$5.75 per keg. Alfred Field & Co. have received a cable dispatch an nouncing a still further advance in Coil Chain. They quote as follows: 3-16, 41s. 6d.; 1/4, 31s.; 5-16, 28s.; %, 26s.; 7-16, 24s.; 14, 23s.; 16, 22s. Traces are firm at 1s. 8d. for 61/2-10-2. Respecting the charges for extras on Chains, the following from a recent Birmingham letter will be of interest: "The extras on Tin Plates are now 8s. instead of 6s.; the extras on Traces are advanced; twisting is now 1/4d. per pair, instead difference between 10 and 12 link 2d., instead of 11/d.; 12 and 14 link 21/d., instead of 2d.; No. 2s are 2d. extra to No. 3s; No. 1 are 3d. extra to No. 2s." Brades' Trowels have advanced; they are now quoted discount 121/2, 50 and 15 per cent.; 1 and 11/2 inch, discount 50 and 10 per cent.; 11/4, 2, 21/4 inch, discount 50 and 71% per cent. currency, from American list. We quote Nettlefold and Chamberlain's Screws as follows: Iron Flat Head, No. 0 to 7, discount 50 and 10 per cent.; Nos. 8 to 30, discount 50 and 5 per cent. J. P. Verree & Co.'s Hatchets and Hammers have advanced to discount 5 per cent. Sargent & Co. issued their Hardware Bulletin on the 22nd instant. We publish their

changes in lists and discounts since 17th instant. AUGUST 1 .- There are a good many Western uyers in town and some complaints are heard that orders are not as liberal as was expected. This is mainly due to the fact that large purchases were made in the spring in anticipation of the heavy advances that have since taken place. Prices are strong, with talk of further advances. German goods may be said to be practically out of the market. English goods high in price and short supply. Hart Mfg. Co., English Square Co., and the Southington Cutlery Co., have ad-Squares as follows: By the case, discount 10 per cent.; less than full case of a kind, net. Parties who become entitled to the full discount on Steel Squares will be allowed 5 per cent. discount on prices for nickel plating. J. & Riley Carr will issue a circular, dated August 1st, making the price of "Dog Brand" Files and Rasps \$5.50 to £, gold, and Horse Rasps, if sold alone, \$5.75 to £, gold. Sargent & Co., Charles Parker and Peck, Stow & Wilcox have advanced

The Douglas Axe Company have advanced quote Seymour's Shears discount 50 per cent. Market Wire has been advanced 5 per cent. John Russell Mfg. Co. make some changes in their April price list, which we publish. Also changes of Landers, Frary & Cark in their May price list. Clark, Wilson & Co., agents for the "L'Hommedieu" Ship Auger and the Elmira Nobles Mfg. Co., making the "Watrous" Ship Auger, have adopted a new list, dated July 25th, with a view to equalize rates on sizes. Nails are unchanged. We quote \$5.75 rates.

AUGUST 8.-There is a fair trade doing in General Hardware, and the number of Western merchants in this city has largely increased since our last issue. There is an active inquiry for goods, and great caution is noticeable in the placing of orders. Prices are well maintained, and with the present high cost of labor and material, there is little prospect of a reaction. English Hardware is in good demand, and advances are still in order. Cheap guns have advanced about 20 per cent. Peter Wright's Anvils are scarce, and importers are largely sold ahead. Coil Chain and Traces are in short supply. The total advance on English Curry Combs to date foots up to 70 per cent. Stubbs' Files are 10 per cent. off the sterling list, "time price." Mann's Axes have advanced \$1 per dozen. The Newhouse Traps will be advanced 5 per cent. on the 15th inst. The list of Kentucky Star Cow Bells has been reduced for numbers from 2 to 7 inclusive, and the discount has been reduced from 20 and 10 per cent. to discount 10 and 10 per cent. Russell, Birdsall & Ward have advanced the price of their Carriage and Tire Bolts to discount 45 per cent. The price of Plow Bolts in bulk has been advanced one cent per lb. Terms, 4 months, or 5 per cent, discount for cash. Their list is unchanged. The Peck, Stow & Wilcox Co. have issued a new discount sheet, which we publish. Hubbard & Curtiss Mfg. Co. have changed the list on Van Sand's patent Blind Fasteners, No. 2000, from \$12 to \$14 per gross. The Nail market is demoralized; the card rates are unchanged, and holders still ask \$5.75 rates, but Nails have been sold to-day at prices ranging from \$5.25 to \$5.75, 100 keg lots being freely of

fered at the former price. August 15.—There is a marked improvement in the demand for Hardware over the previous week. Money is more abundant, and present appearances indicate a healthy trade all over the country. The changes to note are few. The Union Nut Co. advanced their Carriage Bolts on the 8th inst. from discount 50 and 5 to 50 per cent. Washington Mills Emery has been advanced from 8 to 81/4 cents per lb. for regular numbers, and from 5 to 61% cents per lb. for Flour. From this date the discount from both "Newhouse" and "Hawley and Norton" brands of steel Traps will be 171/4 per cent. On the 13th inst. Manila Cordage declined half a cent a pound, and Sisal Cordage 1 cent; we publish the new list. Hermann Boker & Co. quote German Wood Screws from stock at discount 50 and 10 per cent. They also report that their Scissors makers in Germany have all gone back to work, and they will soon be able to supply the demand. The card rate for Nails, viz.,

\$575, is only nominal. August 22.-Although buyers as a rule are not placing heavy orders for fall wants, still the volume of business transacted during the past week is satisfactory. The market for all kinds of Hardware is firm. The sterling price of Stubb's Files has been advanced from discount 10 per cent. to list net, and holders ask \$8 to of 1/4d.; 7 feet, 11/4d. over 61/4 feet instead of 1d.; \$8.25, gold, from stock. Cow Ties have advanced 30 cents per dozen. Tin Lined Lead Pipe has been advanced from 15 to 161/2 cents per 1b., less 10 per cent. Ames Shovels and Spades are in short supply and holders ask net vanced to add 5 per cent., formerly discount 10 list. We quote list to discount 21/2 per cent. per cent. Brades' Crown Hoes have also ad- Collins & Co.'s Wrenches are discount 35 per cent. instead of 40 per cent. as formerly. Reese, formerly 30 per cent. R. Parker's Gimlet Graff & Co., of Pittsburgh, advise us that ow-Pointed Screws are offered from stock as fol- ing to the advance of stock and labor, the price lows: Flat Head Iron, % to % inch, discount of solid Cast Steel Anvils is advanced to 14 cents per lb., formerly 12 cents. The 'Nail Manufacturers held a meeting to-day, and advanced the card rates to \$5.80 for 10d. to 60d. Graham & Haines, 77 Chambers street, have in press their new discount sheet and appendix to catalogue of 1872. We reproduce such portions of it as have not already been noticed in our columns.

AUGUST 29 .- Discount sheets and revised lists are being issued, and there is a good demand for seasonable goods without the slightest shade of speculative inquiry. On the 27th instant the manufacturers of Wrought Hinges advanced their prices. Burden's and Rhode Island Horse Shoes have advanced 25 cents per keg. We quote Burden's and Rhode Island Horse Shoes (Perkin's pattern) \$6.85; Rhode Island pattern, \$7.35, and Mule Shoes \$7.85 per keg, delivered in New York, or from Troy or Rhode Island 10 cents per keg less. On the 26th instant the manufacturers of genuine Chester Emery fixed the price for Grain Emery vanced the price of Carpenters' Steel and Iron at 8 cents, and Flour 5 cents per pound. They also give notice that they are prepared to furnish a second quality of Emery at 5 cents for Grains, and 4 cents for Flours. Mallory, Wheeler & Co. have issued a revised price list of Door Locks, Knobs, etc. This list, bearing date August 17th, was adopted on the 24th in stant. The discount has been changed from 45 per cent. to 40 and 2 per cent. for cash in 30 days. This revision of list and discount makes the net prices the same as those manufacturers Saw Rods 10 per cent., the price now being list from whose lists a discount of 25 per cent. net. A considerable advance in Curry Combs is allowed. Sargent & Co. have issued this has taken place in England. Providence Plate week their Appendix No. 2., containing illustra-Hinges have advanced from discount 10 to 5 tions and lists of the new goods manufactured urers of Wrought Strap per cent. On account of scarcity, city dealers by them since their large book of 1871 was pub-

and T Hinges held a meeting on the 10th in- have advanced Maydole's Hammers to net list. lished, and also the goods advertised in their-Appendix No. 1. They have also published their discount sheet revised to date. The Hart ing as before. We quote them net to discount Manufacturing Company also publish this 5 per cent. Burden's Horse Shoes have been week their discount sheet and appendix advanced to \$6.50 per keg at Troy, and Mule to catalogue. Hunt's Shingling, Claw and Shoes \$7.50. Freight to this city 10 cents. We Lathing Hatchets are now net list, formerly discount 5 per cent. Moss & Gamble's Files are now \$5.25 to \$5.75 to £, gold. Nails are firm at card rates, viz., \$5.80. There are no changes to report in English or German Hardware. Traces are in short supply, and orders to import are taken at time price. Coil Chains and Anvils are firm at our quotations.

SEPTEMBER 5 .- There is a fair trade doing, and some of the larger houses are fully employed, yet complaints of light business are frequent, especially amongst jobbers. The list of Beatty's Butchers' Cleavers has been advanced, the discount remaining as before, viz., 10 per cent. London Mills Emery is advanced to 81 cents for Grain, and 51/4 cents for Flour. The Sandusky Tool Co's Planes have advanced to discount 30 per cent., formerly 35 per cent., and "Ogonts" to discount 35 per cent., formerly 40 per cent. Sargent & Co quote Washita, and Arkansas Stone as follows: Washita, 1 Extra, 36 cents; No 1, 24 cents; 2, 19 cents; Rd Edge Slips, 49 cents; Washita Square Edge Slips, 55 cents; Arkansas No 1, \$1.38; No 2, 80 cents per lb.—all 10 per cent discount for cash. The Stanley Works issue their revised discount sheet. Hermann Boker & Co. have advanced the price of Common Double Guns to \$4.50, gold, formerly \$4. Common Razors have advanced 10 per cent. At a meeting of the "Western Nail Association," held at Pittsburgh on the 30th ult., Nails were advanced 25 cents a keg. We quote them firm here at \$5.80 rates.

SEPTEMBER 12.—Business this week is a great improvement on the preceding, and the evidences are plain that the fall trade is upon us. Manufacturers are driven to their utmost capacity, and prices for all kinds of Hardware are firm and fully maintained. The following advances are made on the price list for Trenton Tools of July: Solid Box Vises, } cent per lb.; Steel Face Hammers and Sledges, all kinds, 1 cent per lb.; all Solid Steel Wedges and Hammers, 1 cent per lb.; Wedges and Crowbars, a cent per lb.: R. R, Clay and Stone Picks and Mattocks, 50 cents per dozen; Grub Hoss and Coal Picks, 25 cents per dozen. The Russell & Erwin Manufacturing Co. have published today their revised price list of Padlocks—discount 40 and 2 per cent. Under date of 9th instant., the Stair Rod Manufacturers have issued a circular, in which they say: "The advance in the price of Metals since our last circular was issued, compels us again to make a corresponding advance in the price of Stair Rods. The esent list will be increased 25 per cent., and a discount of 25 per cent., net, 30 days, allowed from the new list." F. Wiebusch reports a further advance in English and German Cow Ties of 10 per cent. Harvey W. Peace quotes his patent Elliptic Wood Saws, with No. 40 blades, at \$10 per dozen, net; in lots of 25 dozen, 89 per dozen, net. The manufacturers of Cordage issued a revised price list yesterday, which is a decline of % cent per pound on former quotations. Nails are firm at the established rates. The indications point strongly to a further advance. The Eagle Mills Manufacturing Company issued their discount sheet on the 1st instant.

stant.

September 19.—The improved demand for General Hardware mentioned last week has steadily increased, and trade is now fairly active. With the exception of a few articles, which we mention, prices have been fully maintained. Stebbins' Molasses and Oil Gates have been reduced from discount 40 and 10 to discount 50 and 10 per cent., but the impression prevails that the latter discount will not hold good for any length of time, and that before long they will be held at previous figures. The manufacturers of Boxwood and Ivory Rules held a meeting, at which it was decided to reduce the price of their goods to discount 30 and 10 per cent., instead of 25 and 10 as formerly. Sargent & Co., under date of the 16th instant, issue a special number of their Hardware Bulletin, illustrating a variety of seasonable goods. The discount from new list of Wrought and Galvanized Iron Pipe is 45 per cent. Graham & Haines quote the Enterprise Meat Chopper at \$12 each, instead of \$10 as before announced, less discount 20 per cent. The New York Plow Company quote their Solid Eye Sash Weights at 33¢ cents, free on board at New York, Newark, N. J., and Peekskill, N. Y. Clark, Wilson & Co. give notice of an advance in the goods of the Snell Manufacturing Company; "Until further advised, the terms will be 15 per cent discount, though in special cases, and when orders exceed \$1000, we may be induced to make some concession." The Judd Manufacturing Company have issued a new discount sheet, in which they say "all previous discount sheet, served "They also publish in book form a comprehensive catalogue of their goods. At the meeting of Nail Manufacturers, held in this city on the 12th instant, the price of Na SEPTEMBER 19 .- The improved demand for

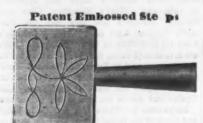
SEPTEMBER 26.—There is a good demand for seasonable goods. Frices are well maintained. The Peck, Stow & Wilcox Manufacturing Company advance their Fry Pans to discount 15 per cent., formerly 20 per cent. Tanged Firmer Chisels are now adiscount 40 to 40 and 10, formerly 40 and 10 to 50 per cent. The Stanley Rule and Level Company have added to their assortment of tools a patent (Bailey's) Flush T Bevel; prices, 8 inch, \$14; 10 inch, \$16; discount 15 and 10 per cent. We note a change of discount from 20 and 10 to 25 and 10 per cent. off on Wheeler's Patent Countersinks on last discount sheet of Stanley Rule and Level Company. Collins & Co. have issued, under date of 20th instant, their revised price list, the important feature of which is an advance of 50 cents per dozen on Kentucky and Yankee pattern Axes. SEPTEMBER 26.—There is a good demand for

cents per dozen on Kentucky and Yankee pattern Axes.

We publish the revised list for Hay, Manure and Spading Forks, Garden Rakes, &c., issued under date of 1st proxime, by Sheble & Fisher, Philadelphia, the discount from which is 25 percent. There is no change to note in the values of foreign Hardware. We have heard of a slight advance on the sterling price of Spear & Jackson's Saws, but it will not affect the price here, at least for the present. We quote these goods, \$4.50 to £, gold.

[To be Continued.]

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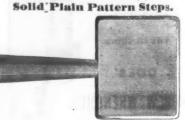






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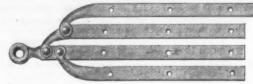
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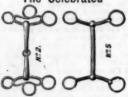
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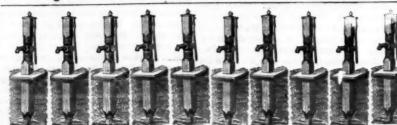
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Utilization of Coal Dust.

BY JAMES A. WHITNEY, M. E.

aring the past four years a number of pros for utilizing the coal waste of American leries have been brought to my notice. of these have been manifestly of little th, while others, under experiments more or complete, have developed a fair degree of ie, but not enough to bring the product into fitable competition with coal at the rates v current. Nearly all appear to have been ed on the idea that an artificial fuel, made n the waste culm, would reduce the price of , but as the raw material is wholly under trol of the mine owners, it is difficult to see this would be brought about. But the nufacture of a first-class fuel from this waste perfectly feasible, and it may be that, with change of industrial or other conditions in coal regions, will, some time, give the subject ater practical or financial importance than it has. From a merely technical or quasientific point of view, however, it merits re general consideration than is accorded it, in this connection I propose to mention ne principles, much neglected by projectors his line, which must govern any successful cess for compressing into fuel blocks the vdery slack to which reference is had. st of the data given below, I may premise, aken from D. Alsjuy's report of the Paris position of 1867, the most careful compilation this topic that I have yet seen.

The production of compound fuel must de-ad upon two conditions: that of the use of roper cementing material and of very great ssure. The cement must be cheap; it must d the coal particles together under a quite th furnace temperature, or the fuel will amble to pieces before combustion; and uld itself be capable of combustion, not essarily to add to the heat of the fire, but to old adding to the quantity of ashes. Damd flour, sometimes proposed, fails on the t of these points, if on no other; clay fulfills second requisite, but fails in the third. t would answer as concerns the first and d, but its inutility as concerns the second is in. Pine tar has been found of no value for purpose, and, on the whole, coal tar, modiby fractional distillation carried to a greater ess degree, seems to best fulfill all the essenis named. Coal tar is used for the purpose, her in the form of "fat pitch" provided by tilling from the crude material twenty-five cent. of its volatile matter, or as "dry ch," the product resulting from the eliminan of forty per cent. of the volatile matter. e former makes a fuel richer in combustible dro-carbons than the other, but much more ely to soften in the grate and to emit volumes smoke in the flues.

The culm of either bituminous or anthracite d may be manufactured into compressed d. The anthracite gives a hard brick, capaof yielding a hot flame, but liable to crumif stirred in the furnace. Several of the gestions for improving the manufacture m anthracite are worthy of note, when we sider that the annual waste in Pennsylvania me (fifteen per cent. on ten million tons) is million five hundred thousand tons. One posed improvement comprises simply more eful grinding together of the cement and lm, and heavier pressure than is used with the uminous material. Another—the use of ade coal tar for mixing, with the subsequent mination of volatile matter by subjecting the cks to a high heat.

Perhaps the best quality of compressed fuel de is that used in the French navy, which es 150,000 tons a year. It must have a specigravity one-fifth greater than that of water. e blocks must not stick together at a high nperature; and the proportion of ash must t exceed ten per cent. The first property is cured by requisite compression, the second by the use of the "dry" pitch only as a cement, and the latter by careful selection of culm from the best qualities of coal. The percentage of ash here allowed, is, however, greater than that permitted by the railroad companies in France, who consume nearly three-quarters of a million toms a year. Other industries consume in the aggregate from seventy thousand tons upward.

The agglomeration of coal waste is not, as would at first glance appear, a matter of simply mixing and pressing the particles together with the cement, as gravel is mixed with hydraulic lime in a concrete wall, but, on the contrary, the processes are intricate and costly. The dust must be washed from slime in special machinery, and freed from fragments of stone; it must be dried, which is done by centrifugal machines, answering, in their modus operand; to those used in bleacheries for drying cloth, and in sugaries for drying sugar. It must then be ground fine in a mill and intimately mingled with the cement or pitch, and then subjected to great pressure in molds, small for house furnaces, larger for the fire boxes understeam boilers, and the like. For this last mentioned function pressing by hydraulic presses, direct pressure from a platen on the piston rod of a steam engine, and pressure rolls are used, the former manifestly superior in the degree of compression attained; the latter in speed of working. Before mixing with the cement, the culm must be heated, which is commonly accomplished by the use of steam. It may be mentioned that the coal bunkers of a transatilantic steamer will hold fifty per cent. more full of this character than, of common coal, owing to the symmetrical shape of the former, which permits it to be more closely packed.

I have thus noted the more prominent facts connected with the manufacture of good fuel from useless waste, for the simple reason that there is no subject with which I am at all conversant, in which the speculations of projectors are commonly more wide of the data and principles which relate to the proce the use of the "dry" pitch only as a cement, d the latter by careful selection of culm from

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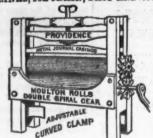
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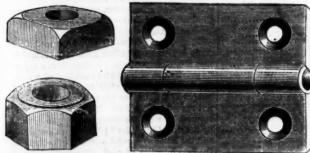
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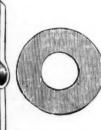
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The oldest established Hardware House in the city, doing a fine and profitable business, and in one of the most thriving towns in Kansas. Satisfactory reasons given for selling. Address office of The Iron Age, 80 Beckman Street, N. Y., for any particulars.

Beam Engine For Sale,

Cylinder, 28% inches diameter, 6 feet stroke, high pressure, in good running order at the American Screw Co.'s New England Mill, Providence, R. I. It has been replaced by a larger engine, built by the Foundry & Machine Co., of Taunton.

Apply to B. R. Thurston, Superintendent at the New England Mill, Providence, or of T. F. Gates, Agent of the Foundry & Machine Co., Taunton, Mass.

For Sale,

AN IRON AND HARDWARE STORE, in a thriving city, with an established wholesale and retail trade, which doubled its capital it 1872, having made a net gain of \$30,000 00.

Stock, at cost. \$65,000 00 Good will.....\$75,000 00 Price at January 1st....\$75,000 Address

Iron Merchant,

Care of St. Louis Democrat.

Iron Foundry

For Sale or to Lease, with privilege to buy, sit-nated at Peekskill N. Y., the Foundry, Machine Shops and other buildings, with water front on the Hudson River, powerful steam engine, and other machinery entirely new, the premises comprising over two acres, and suited for a large manufacturing business. Address ** **Manufacturer*, **Panufacturer*, **Office of The Iron Age, 80 Beekman St., N. Y.

Rolling Mill Machinery For Sale

One train, 3 high, finishing rolls, with steam engine 75 H. P.; and balance wheel, 20,000 lbs.—com-

Fearing, Rodman & Swift, 23 & 25 Commercial Street, Boston. Boston, Nov., 20, 1872.

Rolling Mills For Sale or Lease.

The "CALVERT ROLLING MILLS," situated in the city of Baltimore, were withdrawn from the sale advertised on the 16th of May, and are now offered at private sale, or will be leased to re sponsible parties. The terms will be made advanta ous. The Mills are in perfect order, and can be pu in operation at short notice. For full information address

ALEX. BROWN & SONS, BALTIMORE

Valuable Iron Furnace and Ore Bank

herst and Rockbridge Counties, Va., on the River and Kanawha Canal,

For Lease at Auction. Pursuant to a decree of the County Court of Rock-bridge County, November 15th, 1872, in the cause of Sam'l F. Jordan's Executor, vs. Sam'l F. Jordan's heirs, we will, as commissioners, offer for rent a public auction, at the Court House, in Lexington,

On Monday, 3d day of February, 1873, at 12 o'clock, M. of that day, for the term of three years from that date, that valuable

CHARCOAL IRON FURNACE.

years from that date, that valuate

CHARCOAL IRON FURNACE,
now in successful operation in Amherst Ce., Va., of
the estate of Sam'l F. Jordan, deceased, together
with an excellent Iron Ore Bank, in Rockbridge Co.
Va., in connection therewith by the James River and
Kanawha Canal.

The property has been in operation for the last ten
years, and has yielded great profits to its proprietors,
it is rented now for the purpose only of facilitating
the settlement of Mr. Jordan's estate.

This is one of the most valuable and profitable
properties in Virginia. The furnace, immediately
upon the bank of the James River and Kanawha
Canal, is abundantly provided with timber for fuel
immediately surrounding it, and has a never falling
water-power of the entire James River. Its capacity is 6 tons of fron per day.

It is 22 miles above Lynchburgh, and 112 from
Richmond, by the canal.

The Ore Bank is also located upon the canal, 15
miles above the furnace. The ore is now raised
about 90 feet, the opening is about a mile from the
canal, to which a good wagon road leads down grade
all the way.

The ore is of an excellent quality—50 per cent.—and
is, perhaps, the finest in Virginis, being in great repute in Richmond, Baltimore and Philadelphis for
the manufacture of car wheels.

Parties desiring to examine will best reach the
property from Lynchburg Mr. Wm. Jordan, the
present manager, living at the Furnace, will take
pleasure in showing the property.

Upon the next day, after the renting of the Amherst Furnace, will be sold all the stock and plant
upon the premiser, used and necessary for operating
the same, consisting of mules, horses, wagons, carts,
tools, canal boats, &c.

TERMS OF SALE.

For personal property made known on day of sale.

For personal property made known on day of sale.

For the real property, cash sufficient to pay costs of suit and renting, the balance in 6 equal semi-anual instalments, secured by bonds with good personal security, the lesses being required to enter into the usual covenant not to waste or damage the freehold. In case that part of the caual used in operating the furnace is at any time so ser ously injured as to necessitate an abandoment of the operations, the lease may be abated pro tanto.

For further particulars, address

RICHARD L. MAURY.

Luxington, VA.

For Sale, &c.

Valuable Iron Works For Sale in Frederick County, Maryland.

The undersigned offers for sale until February 20, a valuable property, situated in Western Maryland, on the line of the Western Maryland Railroad, within a half mile of the Borough of Mechanicstown, containing ten acres of land, with a valuable Forge for the manufacture of Hammered Iron from Scrap, in inning order, excellent water power with a fall of seventeen feet, beside a large and commodicus dwelling house in good condition, a barn and other buildings. Situated in a fertile and prosperous country, with scrap in abundance, a constant demand for the iron, and railroad facilities excellent. A splendid opportunity is offered for a lucrative from business. A very small capital is required for a successful prosecution of the business. Will be sold low and on easy terms if applied for promptly. Title good and possession given immediately. For particulars apply to or address. J. M. Wiestling, No. 203 Walnut Street, Harrisburg, Pa

The Napanoch Blast Furnace, Ulster Co., N. T., plendid water power. Charcoal and Anthracite Coal abundance, cheap. Apply to H. Bange, 54 Tompklus Flace, BROOKLYN, N. X.

Special Notices.

Hardware Salesman Wanted.

A LARGE MANUFACTURING AND JOBBING A Hardware House, in New York, wants to engage four well posted, first-class Hardware Salesmen, to travel and sell goods in the four following sections of the country, vis: Wisconsin and Minnesota, Southern and Western Indians and Southern Illinois, Missouri and Western Indians and Southern Illinois, Missouri and Western Iowa, Canada and the Provinces. Persons without experience or trade in either of the above four parts need not apply; as parties who are engaged will risk their time and traveling expenses. Address, with reference, I.G.,

Box 2127, N. Y. P. O.

Malleable Iron Coke Shovel.

The subscriber wishes to know the address of the manufacturer of the large patent Malleable Iron Coke Shovel. Any one knowing the address will confer a favor by sending it to

No. 435 West 23d Street, N. T.

File and Steel Trade.

The advertiser, who has had a long experience with prominent firm, who, since the fire, have decided to discontinue their Retal Business, desires to make arrangements to represent a good house in Boston, and work the New England States, &c. Address

HORSE SHOE IRON

Of superior quality,

MANUFACTURED BY

NEW HAVEN

Rolling Mill Co.

By R. T. Hazell & Co.,

Store No. 118 Chambers Street. REGULAR SALES OF HARDWARE, OUT LERY, FANCY GOODS, &c., will be held on TUBS DAYS and FRIDAYS throughout the season. CASH ADVANCES made on CONSIGNMENTS with-out additional charge.

Trade Register HARDWARE

And Kindred Interests.

GUARANTEED CIRCULATION, Five Thousand Copies

Amongst all good standing Hardware Dealers throughout the United States, payment for advertisements being required only upon proof of fulfillment of our Contract. Will be published about Fébruary.

All Parties having anything kindred to Hardware should advertise in it. Circulars upon application.

The Merchants & Man'frs Agency, 4 Warren St., N. Y., Publishers

CAUTION.

The public are warned against paying money in dvance for the insertion of advertisements, or other natter in works published by us.

The Merchants and Manufacturers Agency,



For sale by Machine Agents and Dealers. Siniouds Mrg. Co., Fitchburg Mass: A MONIEN

New York, Thursday, January 23, 1873.

DAVID WILLIAMS . . . Publisher and Proprietor. IAMES C. BAYLES . Editor JOHN S. KING . , " Business Manager.

The Iren Age is published every Thursday the following terms:

SUBSCRIPTION. Resular Weekly Edition ... \$4.00 a year

Monthly...... 1.00
1st Weekly No. in each month.

ADVERTISING. One square (12 lines, one inch), one insertion, \$2.50 one month, \$7.50; three months, \$15.00; six month \$25.00; one year, \$40.00; payable in advance.
All communications should be addressed to

DAVID WILLIAMS, Publisher, 80 Beekman St., New York.

City Subscribers will confer a favor upon the l'ablisher, by reporting at this office any delinquency on the part of carriers in delivering The Iron Age; also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

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Twenty-ninth Page.—Chicago, Cincinnati, St Louis and London Hardware and Metal Prices.

Railroad Progress in 1872.

The statistics of railway progress given below, show that we built 7613 miles in 1872, against 7878 in 1871 and 7433 in 1870. The total length of finished roadway in the United States on the 31st of December. 1872, was 70,178 miles, to which must be added about 40,000 miles under construc tion and projected. The following table shows the total mileage in the several States and Territories, December 31st, 1879, as compared with December 31st, 1871:

New Hampshire	797	981
Vermont	311	764
Massachusetts	1,642	1,648
Rhode Island	130	139
Connecticut	- R26	907
1 21 (10		-
Eastern States	4,984	5,306
New York	4,253	4,901
New Jersey	1,049	1,379
Pennsylvania	5,521	.5,787
Delaware	208	281
Maryland and Dist. of Columbia	818	861
West Virginia	478	512
Middle States	12,322	13,671
Ohio	8,860	8,962
Michigan	2,688	2,997
Indiana	8,709	8,829
Illinois	6,304	6,901
Wisconsin	1,658	2,219
Minnesota	1,558	1.855
Iowa	8,162	3,679
Kansas	1,703	2,117
Nebraska	906	1,192
Missouri	2,864	2,977
Colorado Territory	442	557
Dakota Territory	61	323
Idado Territory	****	
Montana Territory Wyoming Territory	454	454
	404	2072
Western States, &c	29,319	33,062
Virginia	1,478	1,516
North Carolina	1,261	1,816
South Carolina	1,210	1,891
Georgia	2,157	9,217
Florida	467	467
Alabama	1,698	1,839
Mississippl	984	989
Louisiana	592	568
Texas	797	1,801
		813
Indian Territory	148	
Arkansas	490	679
Arkansas Tennessee	1,521	1,582
Arkansas	490	
Arkansas Tennessee	1,521	1,582
Arkansas	490 1,521 1,018	1,582 1,173
Arkansas	1,521 1,018 13,751	1,582 1,173 15,281
Arkanaas. Tennessee Kentucky. Southern States, &c California. Oregon. Nevada.	1,521 1,018 13,751 1,111	1,582 1,173 15,281 1,522
Arkaneas Tennessee Kentucky. Southern States, &c California Oregon. Nevada. Utah Territory	1,521 1,018 13,751 1,111 199	1,582 1,173 15,281 1,522 298 602 381
Arkaneas Tennessee Kentucky Southern States, &c. California Oregon Nevada Utah Territory Washington Territory	1,521 1,018 13,751 1,111 199 567	1,582 1,178 15,281 1,522 298 602
Arkaneas Tennessee Kentucky Southern States, &c. California Oregon Nevada Utah Territory Washington Territory	1,521 1,018 13,751 1,111 199 567 812	1,582 1,173 15,281 1,522 298 602 381 55
Arkaneas Tennessee Kentucky. Southern States, &c California Oregon. Nevada. Utah Territory	1,591 1,018 13,751 1,111 199 567 319	1,582 1,173 15,281 1,522 298 602 381
Arkapasa Tennessee Kentucky. Southern States, &c California Oregon. Newada. Utah Territory. Washington Territory, Arizona Territory. New Mexico Territory	1,521 1,018 13,751 1,111 199 567 812	1,582 1,173 15,281 1,522 298 602 381 55
Arkaneas Tennessee Kentucky Southern States, &c. California Oregon Nevada Utah Territory Washington Territory	1,521 1,018 13,751 1,111 199 567 812	1,582 1,173 15,281 1,522 298 602 381 55

The fact that, of nearly 50,000 miles of railroad projected or in course of construction during the year, only 7613 miles were completed, is attributable chiefly to the difficulties experienced during 1879 in raising, especially in the foreign markets, the capital needed for the vigorous prosecution of such enterprises. In Germany a wild season of speculative excitement followed the close of the war with France, but capital grants, against 229,639 in 1871, an increase chiefly sought local investments, and Amer- of 61,578 in one year. During the past ten small and large bars in coarse than in fine ican securities of all kinds have been in less years about three millions of immigrants varieties,

70,178

Total United States.

ceived regular interest, but the full value of the Treasury, had the effect of popularizing governments over all other American our 6 per cent. bonds, British capitalists bought a very large share of the new 5 per cents. issued in the place of the 6 per cents. which the German holders had surrendered. Following this came the Alabama negotiader the Treaty of Washington, American and for the last three months of the year dull and heavy.

In our own market there was a fair detumn stringency was felt, but, as a whole, on such securities, although from causes investment. For this reason, however, the by so greatly increasing the cost of completing new roads, encouraged a postponement of track-laying in the expectation of lower prices. We take the following from the annual circular of Messrs. Bigelow & Johnson, dated January 1st, 1873

"The import in 1872, at this port, falls short of that of 1871 to the extent of 27, 363 tons, though this by no means represents the actual decrease, as the import of Bessemer steel rails has greatly increased, and such are included in our aggregate quantity. Business in iron rails has for some months been slow and dragging in character, partly owing to the inin iron rails has for some months been slow and dragging in character, partly owing to the inability of some and the unwillingness of other railroad companies to follow the advance in prices. The investment of foreign and domestic capital in the bonds of new roads has also greatly fallen off, and the stringency which has been more or less for a length of time so marked a feature in our own money markets, has compelled the abandonment or postponement of numerous schemes. It is true that we have probably added some thousands to the completed mileage in 1272 and the pregent demands pleted mileage in 1872, and the urgent demands of commerce will continue to offer temptations to capital in this direction, but the number of schemes has been sifted down to those that are schemes has been sifted down to those that are generally on a sound basis and really necessary to the comfort and prosperity of the sections through which they are intended to run. The manufacture of Bessemer steel rails has made steady progress, and there is a growing conviction, manifested not only in the abundance of orders enjoyed by those works devoted to this branch in the United States, but in the increasing imports from abroad, that to those railroads possessing a rapidly growing traffic and whose orange in the United States, but in the increasing imports from abroad, that to those railroads possessing a rapidly growing traffic, and whose resources will admit of the extra outlay, they are in the long run by far the cheapest material. The rail mills of the United States have generally been well employed, at least those located west of the Alleghany Montains. In the East, particularly on the coast, there has been a scarcity of paying work. Our production in that section has therefore somewhat fallen off, though we estimate the total for the year at all points to be not far from 700,000 tons.

We subjoin the prices of foreign rails ruling at the commencement of each month in 1872, comparing with those at the corresponding period in 1871, with this remark—that the duty which till August 1st, 1872, amounted to \$15-68 per ton, gold, became thereafter ten per cent. less, or, say, \$14-12 per ton; but the change had no perceptible effect on prices."

			GOLD PRI	CES.	
1879 1871	\$58 55	Jan. to 59	Feb. 62 to 68 54 to 55	March. 65 to 65% 55 to 56	April. 72 to 78 55 to 56
1872 1871	\$75 55	May. to 76 to 56	June. 73 to 74 55 to 56%	July. 73 to 73 56½ to 57	Aug. 72 to 78 56% to 57%
872 871	\$75	ept. to 76 to 57%	Oct. 75 to 76 57 to 58	Nov. 73 58	Dec. 70 to 72 58

The course of the market for American

of prices, currency

The opinion has gained ground during the past few years that, in the direction of railroad expansion, our progress has been too rapid, and that our financial system is not sufficiently elastic to admit of the safe conversion of so large a proportion of our floating into fixed capital. When we consider, however, the area of our country, the variety of its sources of wealth yet undeveloped, or only developed in part, the volume of our internal commerce, and the extent to which our railroad system increases our capacity for production and exchange, it is easy to see that we have not yet reached the point when building railroads will impoverish the nation. With our rapidly increasing to extreme softness, although very close and population we annually need increased and extended facilities for intercommunication: new sections must be opened to settlement, and new sources of production tapped. While we are running thousands of miles of road through hitherto undeveloped country, Europe is sending here, weekly, its thousands of able-bodied emigrants to cultivate these lands. Within the last few years the inflow of immigration has largely increased. During 1872 there arrived at the port of New York 291,217 immi- perior.

favor than those offering larger, but less have come here to remain, and from this substantial, promises of profit to purchasers. time on a steady annual increase may be the public works department for India to In England, the fortunate speculation of expected. These new settlers are all pro- adopt his classification of wrought iron in the German investors who bought our 5-20's ducers, and about one-half seek the far drawing up specifications founded on the of '62 at a liberal discount, and not only re. West to settle upon the new lands not results of his different experiments on iron hitherto brought under cultivation. Instead of different well known brands, classified borers without means, a considerable pro- softness. These classifications are as folportion of the number are experienced lows: securities; and, having repented of refusing farmers, who have given up their lands in England and Germany to avail themselves of the greater advantages offered in the virgin lands of this country, and who bring with them capital enough to purchase farms and stock them. This annual accession of tions, pending the settlement of which, un- population is a matter of the greatest practical importance, and there are indications investments were regarded with caution, which warrant the belief that the westward flow of European emigration has only just the stringency in money rendered the begun. The old world is feeling, for the market for investment securities of all kinds | first time, the full effects of the competition of our cheaper lands, and with the population and cultivation of these lands comes mand for railroad securities until the Au- an imperative demand for more railroads. We think, therefore, that a fair considerathe year was unfavorable for raising money tion of all the facts affecting the extension of our railroad system will lead to the conwhich imply no lack of confidence in their clusion that these works lay the basis for so value on the part of those with capital for rapid and sustained a development of the resources and commerce of the counroads now in progress have been less liber- try that we could well afford to invest ally supplied with the means necessary to a larger percentage of our annual increase rapid completion and extension. Another of wealth than has yet been expended in cause of diminished energy was the ad- railroad construction. We have, however, vance in the price of railroad iron, which, learned from experience the vicious results of the system of encouraging enterprise in this direction by liberal subscriptions of public funds in aid of railroad construction. When such aid has been given, the result, with but few exceptions, has been that speculators in legislative favors and franchises have enriched themselves at the expense of the taxpayers, in the construction of roads that, but for such aid, would never have been built. When this matter is left wholly to private enterprise, no railroads are built without a definite and well considered purpose, and with a view to the accommoda tion of an existing or possible traffic : and as those who project such roads must themselves assume the greatest risk of loss or disappointment, self interest, enlightened by experience, may safely be left to determine the question of whether we shall build one thousand or ten thousand miles

> In another part of this issue we present two interesting tables, showing, respectively, the relation of mileage in the several States to area, population and valuation, and the comparative total mileage of the United States and other countries.

per annum.

About ten years ago Mr. David Kirkaldy published his "Experiments on Wrought Iron and Steel." Previous to that time this important branch of science was but little understood, and rested on a few isolated experiments, which have since been proved to be fallacious. The best illustration of this is found in the generally received belief as to the properties of Swedish iron. Engineer's tables give best Swedish bar 72,000 lbs., ultimate tensile strength per square inch, whilst the fact is that the ultimate tensile strength is but about 49,000 los. per square inch; and although this tensile strength is much lower that many kinds of common English bar iron, the tensile strength is not considered the criterion of value: the criterion of value of this iron is the contraction of its area at fracture than English iron; and when the strain is applied, breaks gradually with an invariably fibrous appearance; whilst some kinds of common English iron vary from 52,000 to 66,000 lbs. per square inch, with a much smaller contraction of area at fracture, and with a coarse, irregular and partly crystalline fracture.

These facts are the basis of Kirkaldy's clusions are as follows:

1st. The breaking strain does not indicate the quality, as hitherto assumed.

to the iron being of superior quality, dense, fine, and moderately soft; or simply to its being very hard and unyielding.

3d. A low breaking strain may be due to looseness and coarseness in the texture, or fine in quality.

4th. The contraction of area at fracture, previously overlooked, forms an essential element in estimating the quality of speci-

5th. The respective merits of various specimens can be correctly ascertained by comparing the breaking strain jointly with the contraction of area.

6th. Inferior qualties show a much greater variation in the breaking strain than su-

7th. Greater differences exist between

These conclusions led the engineers in

Y and a second	CLA	CLASS C.	CLA	CLASS D.	CLA	Class E.	CLASS F.	56 F.	CLASS G.	s G.
DESCRIPTION.	Ultimate stress per square inch.	Contraction of area at fracture.	Ultimate stress per square inch.	Contraction of area at fracture.	Ultimate stress per square inch.	Ultimate Contraction tress per of area uare inch. at fracture.	Ultimate stress per square inch	Ultimate Contraction	Ultimate stress per square inch.	Ultimate Contraction stress per of area square inch. at fracture.
	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons.	Per cent.	Tons	Per cent.
Bare, round or square.	100	5	96	88	25	30	204	货	83	90
Bars, flat	26	40	ŝ	30	204	257	200	90	25	16
Angle and Tee or T	39	80	84	20	*8	18	80 80	15	22	10
Plates, lengthway	18 ±2	20)	%16 06 80 81%	25 12	20%	3/4	21 193	10) 50 736	20) 18%	35 x

N. B.—Classes A B are reserved for any special qualities of Iron which might be required at any fu-ture time.

SWEDISH BARS. Ultimate stress 22 tons. Contraction of 60 area at fracture. TESTING CLAUSE TO BE INSERTED IN "CONDITIONS OF CONTRACT."

The iron to be of such quality as to stand the following tests: CONTRACTION OF

Kirkaldy's Classification of Wrought ULTIMATE TENSILE STRENGTH PER SQUARE INCH.
Average Tons.

ULTIMATE TENSILE STRENGTH
PER SQUARE INCH.

Average
Tons.
Bars, round and square.
Bars, flat.

B

npon.

The iron will be accepted, although under the above specified strain, provided the contraction of area at fracture is the same per centage higher, or, in other words, softer iron than that specified will be contracted.

These tests are approved generally by European engineers, and are entitled to the careful consideration of engineers in this country.

The Reading Railroad and the Coal

classification of wrought iron. His con- ing Coal and Iron Company, and charges that the retailers, who are making the loudest complaints, have themselves combined to prevent competition. He admits that 2d. A high breaking strain may be due the Reading Railroad Company have opened several retail yards, and will open several more in the Spring, but says that the company "will never sell coal by retail except at 'such a price as will yield a fair profit over and above the wholesale price of coal at the mines, added to the cost of transportation to the yard. That it can secure a fair profit, and yet sell coal at from \$1 to \$1.50 per ton less than has generally been charged, will be evident to any one who is at all familiar with the trade." Perhaps this is where the shoe pinches. Mr. Gowan compares the cost of a ton of coal private retailers, as follows:

									(24	٥.	°8	Yard.
Cost of	coal	 	 								.4	12	75
Transno	rtation							٠				- 26	20
Ront of	DIRW	 -	 à .					٠	*	0	6	v	10
Vard or	Denses											U	10
Profit							*	٠			•	0	15
												_	

And adds, in conclusion, that "\$1 per ton saved in the cost of coal, in Philadelphia, adds over \$1,000,000 per annum to the

wealth of the city."
So far, so good. The retailing of coal is certainly a proper and legitimate branch their bonds when called in and cancelled by of being, as formerly, chiefly unskilled la- according to their ultimate strength and of business for a company engaged in both mining and transportation, and if it can sell to consumers direct at a lower price than they can be supplied through the agency of the dealers, clearly the dealers must and should withdraw from the business. No man, whatever his occupation, can expect to make money unless his services are worth paying for, and middle men are only tolerated so long as, by facilitating exchanges between producer and consumer, they render the community services equal in value to the profits they include in the prices charged consumers. This rule is of universal application, and the only exceptions to it are found in the case of swindlers who make profits without giving value. If, therefore, the Reading Railroad Company can sell coal below the current retail price, and are disposed to do so, the retailers must either compete with them on equal terms or withdraw from the business. But what will follow? When the company, by selling at lower prices than individual retailers can afford to sell at, has acquired a legitimate and proper monopoly of their business, will they continue to give consumers the benefit of their ability to sell coal at cost, plus a profit of 15c. per ton; or will they take advantage of the opportunity to charge the highest prices which consumers will pay? Corporations, particularly those controlling large capital and wielding vast influence, have no consciences; and we have learned from experience the difference between what companies can do and what they are disposed to do. Practically, Philadelphia consumers are at the mercy of the Reading Railroad Company, and while the intentions of the manage ment of that corporation may be good at the present time, it remains to be seen whether or not the temporary advantages enjoyed by consumers will be gained at the expense of future short supplies and high

The Five Gas Stokers.

The sentence of five gas stokers to one year's imprisonment for conspiracy, is just now causing intense excitement in England, especially among the working classes. The circumstances of the case are as follows: The stokers in question were employed on contracts requiring that they should not quit work without giving notice of from one week to one month. They were all members of a trade union, and when one of their number was discharged for some cause which did not appear on the trial, the others made a demand that he be reinstated, which was refused. On the 2d of December last, notice was given to the company that if the man was not reinstated they would not go to work. The demand was still refused, and the stokers' union declared a strike, upon which the company brought suit against the five stokers who had incited the strike, on the criminal charge of conspiracy. The case was brought to trial and, within twenty minutes after their retirement for deliberation, the jury returned a verdict of guilty, upon which the court sentenced the prisoners to one year's imprisonment. We take the following from the judge's charge:

The prisoners were the principals—the chief actors; two of them were delegates chosen by the men, and therefore evidently men to whom they looked up. They took a leading part in the conspiracy. Therefore, notwithstanding Trade.

Whatever may be the ultimate purpose of the Reading Railroad Company in establishing a retail business in Philadelphia, the immediate effect of the movement is likely to be decidedly in favor of the consumer. Mr. Gowan, president of the company, in a letter to the Philadelphia Ledger, denies any intention of coercing the small operators into consolidation with the Reading Coal and Iron Company, and charges that the retailers who are making the loud.

It is evident that the law under which this conviction was secured admits of a very much wider application than would be safe to give it; and it is not to be wondered at that public opinion fails to recognize the justice of the punishment which the five stokers have been compelled to suffer. The inconvenience and danger resulting from a stoppage of the gas supply of London was merely incidental, and against such a danger the companies should protect the community, not the courts. We have no sympathy with strikes organized upon such pretexts under any circumstances, but do not think that the power of the law should be employed to prevent men in any trade from taking such action at the company's yard and at the yards of as they may choose, provided they do not interfere with the right of others to work or refrain from working. The effects of such interference will be worse than the evils which it is designed to remedy; for if the idea gains ground that capital is persecuting labor, through the agency of un-\$7 20 just and arbitrary laws, labor will be sustained by public opinion in the most overt and unjustifiable acts of retaliation. It is better to leave the adjustment of all differences between labor and capital to the operation of the natural laws of competition, and all that the courts can properly undertake is the protection of the individual and corporate rights recognized by the common

The Gilbert Elevated Railway and Its Connections

On another page we publish, with illus-

tration, a description of the Gilbert Elevated Railway, chartered by the legislature last winter, and now about to be built. The importance of this project arises from conveying passengers arriving from the north, east, and west into the heart of the With the completion of the road. trains from Albany, Montreal, and Boston, by the New York and Boston Railroad, will cross the Harlem River, near High Bridge, and proceed directly to the City Hall and intermediate points in the city, and trains arriving from the west, by the by the suspension bridge to be located near Peekskill, and passing down by the New York and Boston Railroad, will connect with the elevated railway at High Bridge. Passengers now arriving at Jersey City, and who are compelled to submit to the inconvenience of the ferries, will then be conveyed directly into the city, and be spared the trouble of changing from car to boat. The importance of the project is also enhanced by recent railway combinations, which will make the Gilbert Elevated Railway the terminus of several lines converging from New England, Canada, and the West. On Monday last the New York, Boston and Northern Railroad was consolidated with the Harlem Extension, the new company being known as the New York, Boston and Montreal Railway Co. The northern portion of the Harlem Extension Railroad, extending from North Bennington to Rutland, has not yet been brought into the combination, but measures have been taken to effect that object, and with the acquisition of this branch, the New York, Boston and Montreal Railway will control an extensive system. The roads entering into the combination are the New York and Boston, the Putnam and Dutchess, the Dutchess and Columbia, the Pine Plains and Albany, and the Harlem Extension. The new line, therefore, affords a direct communication between New York and Rutland, Vt., where connecting roads make the communication with the Montreal complete. A running arrangement for 50 years between the New York and Boston and Erie railways, consummated some time ago, increases the efficiency of the combination, and insures the building of the Hudson River suspension bridge, which is necessary to enable the Erie to connect with the East without the employment of ferries. Both roads have agreed to assist in building the bridge, and work will probably be begun upon it at once. With the Gilbert and Vanderbilt roads both in hand, we will probably have quite as much "quick transit" as we need, and unexpectedly soon.

Those who have based their predictions of a magnificent future of the narrow Wales, will be pleased to learn that the gauge of that railway "is about to be much extended." 'We have the news on the authority of the London Times, which neglects to state what the new guage will be.

Scientific and Technical Notes.

MM. Cumin and Martel have invented a pro-

cess of CASTING METALS IN VACUO,

which promises to obviate one of the most serious difficulties experienced in casting by the ordinary method, i. e., the presence of air in the molds which is not expelled by the metal poured in, and which forms between the sides of the casting and the mold a thin envelope which prevents the metal from taking the exact shape of the mold and occasions air holes and other defects. Cumin and Martel's process is based upon the employment of a vacuum. At manner that the air is drawn from the mold through the pores of the material of which it is made. The interior surface of the mold is, therefore, covered with a substance sufficiently porous to allow the air to pass, yet of ample resistance to guarantee perfection in form of the object cast. The material employed varies with the nature of the metal. 1. For those very easily fused, such as type metal, the inventors employ fine plaster, well dried. 2. For harder metals, such as bronze, they use plaster mixed in almost equal proportions with plumbago, alumina, and other substances of a similar nature, this mixture having been previously thoroughly dried, to drive off all the water facility in every direction Its moving from the plaster. 3. For more refractory metals, such as cast iron and steel, the sand mold is simply covered with plumbago, or other analogous materials.

M. Barreau, Jr., a civil engineer of Alexan dria, has invented a new

TIDE MOTOR

by which he proposes to utilize the motion of the sea waves. He intends to raise the water of the sea above its level by the natural power of the waves, for which purpose a basin or reservoir of iron or masonry is to be ported upon a carriage moved upon rails the sea by a sliding lock gate, the hight of which is regulated according to the power of the waves. These meeting with the fixed minute, may be given. The force of the blow the reservoir. In order to facilitate the retaining of the sea water by the lock gate, the side walls of the reservoir, to the right and left of the gate are widened, forming thus a kind of funnel. The water accumulates thus in the reservoir at a level somewhat higher than that of the sea. The reservoir is closed at the land the necessity which has long been felt of side by a second movable lock gate, which permits the water of the reservoir to act upon a water-wheel driving any machine. During the inactivity of this machine, the water-wheel is to store up power, either by compressing air or by raising water in a reserve basin.

Many years ago Fremy discovered, very unexpectedly at the time to the chemical world, that gum, instead of being, as previously held, an isomeric form of starch, or cellulose, was the lime salt of a peculiar acid, gummic acid. The Erie Railway, will cross the Hudson River | British Journal of Philosophy states that, very curiously, gummic acid combines with ferric ox ide, forming what may be called an

IRON GUM.

To coat paper, which is then sensitive to light, a solution of perchloride of iron is taken, ammonia cautiously added with agitation until a permanent precipitate makes its appearance. The liquor is then filtered, paper saturated with the solution, and allowed to dry in the dark. The coated sheets are then floated on some thick mucilage of gum-arabic. The surface of the paper is thus covered with an even layer of the gummate of iron." When the paper carrying the iron is first coated with the mucilage, the color does not at once change, but presently a strong, yellowish-brown tint is produced, and be very light; and the siphon, in this case, made the gum "sets," and then the layer dries up, leaving the paper very flexible for a long time, and highly glazed.

Capt. John Gonkin has lately found, in the Tecoma mine, near Buel City, Nevada, some specimens of a very rare mineral known as

MOLYBDATE OF LEAD, concerning which Mr. J. S. Phillips, M. E., of San Francisco, writes as follows: It has been found of various colors, from orange yellow to aurora red, and from wax yellow to gray and brown; these samples are, for the greater part, bright amber yellow, certain portions being changed by oxide of iron, to snuff color; the amber parts are crystallized either into irregular tables, which lie at all angles, or as very flat, four-sided prisms, of strictly lamellar structure, which may be cloven with the greatest ease, parallel to their base, to thin scales whilst the whole stone is so soft and friable that it may be crumbled between the fingers more like an artificial drug than a natural mineral. When heated, it first decrepitates into very numerous thin scales, which, on increase of heat, becomes of a dark, wax yellow. (returning as before to pale amber yellow when cold) on the temperature being still further increased it fuses into a light sulphur yellow mass. Fluxed with carbonate of soda it may be smelted on charcoal, in the blow-pipe's yellow flame, when about half its weight of lead will be reduced to one or more buttons, whilst the molybdic acid will pass into the coal. This is similar to tungstic acid, with the difference, that after the removal of the lead, the molyl denum may be oxidized before the blue flame to coat the surface with its copper colored oxide. When fused with carbonate of soda in plantinum wire, it forms a limpid molten glass, which becomes milk white when cold. This bead when fused on charcoal in or before the blowpipe's flame, passes into the coal and the gauge, on the success of the Festiniog line in red oxide may be made to reappear, as best seen by a lens. Fused with borax in platinum wire before the point of the blue flame, the resultant glass is dark yellow when hot, and of beautiful opaline appearance when cold; but when an excessive quantity is added, the glass when hot is dark red, then yellow, and when The manner in luite cold, a bluish gray opal. which this opaline appearance closes in from the wire to the center of bead, during the cooling, is very characteristic. Merlet's moist method may also be resorted to for the detection of molybdic acid in this mineral, as follows: Fuse the powdered sample with nitre in a platinum spoon or crucible, then dissolve the molybdate of potash thus formed, in water boiled over a spirit lamp (or hot stove), filter or pour the clean liquor into a porcelain dish (or saucer), then, after placing a small piece of bright copper therein, add to the boiling solution just sufficient hydrochloric acid to dissolve some of the copper, which will form a general the moment of casting the mold is placed in light green solution, and after some time (if communication with an air pump in such a molybdic acid is present) just immediately over and around the metallic copper, its characteristic indigo blue.

General Haupt's

IMPROVED ROCK-DRILL as adopted by McKean & Co., of Paris, is now attracting the attention of mining engineers It consists of but few parts, all of which are well designed for compactness and strength; and, there being no undue strain upon any part, it is scarcely possible for it to break down. which has been the common failing with rockboring machinery. It can be adjusted to any required position, so that holes can be drilled at any angle, the machine working with equal parts are only two-the piston and pistonrods, with cutter-bar, and the valve. It is manipulated with the greatest ease, and it is inexwhatever upon any part of the machine except the cutter-bar and piston, which is cushioned them, as men will always seek self-interest.

by the steam or air in the cylinder, the wear is reduced to a minimum. For driving tunnels where one or more machines may be worked against the face, the machines are mounted upon movable and adjustable columns, supconstructed on the sea coast, and closed toward The smallest size of machine will drill holes of any ordinarily required diameter, and any obstacle, caused by the presence of the lock can be made more or less, at pleasure, by the gates, rise along it, and fall over its crest into simple turning of a screw in connection with the valve gear. The whole force of the blow comes upon the solid piston carrying the boring-tool, to which it is readily and firmly ecured by a very simple and ingenious device. The steam or compressed air operates upon he piston in such a manner as to keep it working in suspension, the valve ports opening und closing so as to give the steam or comressed air its effective force, and forming a ushion at either end of the piston in its reiprocating movement. The tool is forced to otate regularly in one direction, and the rotaion is made to occur during the backward stroke of the piston. For sinking shafts the nachine is mounted on a column placed crosswise in the shaft, from which column any equired direction may be readily given to the poring tool.

Chambers' Journal publishes the following vith regard to a

NEW AND IMPORTANT INVENTION IN TELE-GRAPHY.

When Sir William Thomson invented his relecting galvanometer, and showed its usefulness for telegraphic purposes, he insured the success of under-sea cables, whatever their length. With this instrument, the movements of the little reflector enable the clerk to read off the message by careful watching. But recently, Sir William Thomson has invented an instrument-the patent siphon recorder-which, as its name indicates, writes or records the message, as received, on a strip of paper. It is an essential condition of such an instrument that it shall of capillary tubing, is not thicker than a horse hair. Indeed, so small is the bore, that the ink will not flow therein of itself, but squirts out when electrified. The siphon is connected with a coil of copper wire, an electro-magnet, and an ebonite desk, armed with pieces of soft iron, which, being attracted by the magnet, is kept rotating, and regulates the current flowing from the battery and cable. Acted on by this current, the ink, as already stated, squirts from the siphon, and writes a succession of dots and dashes, which represent the letters of the alphabet. To an unaccustomed eye the writing is a confused, unmeaning scribble; but a good telegraph clerk will read it off as if it were ordinary writing. Thus a message will now, so to speak, deliver itself from the other side of the ocean thousands of miles distant, and telegraphy has achieved another triumph.

NICKEL AS A GAS OCCLUDER.

Prof. Raoult, of Grenoble, has proved that nickel employed for twelve hours as a negative times its volume of hydrogen, and abandons entirely this gas, when it is taken from the voltameter and plunged in water. M. Raoult has caloric, and has succeeded in demonstrating that the intensity of the heat developed by an electric current is independent of the system of battery by which the current is engondered.

Mr. T. B. Tilghman, the ingenious invento of the sand blast process of carving glass marble, etc., has devised a

NEW PROCESS OF CUTTING STONE.

He substitutes for the sand, which is usually used for feeding the saws by the usual mode of sawing stone, small size cast iron shot. This shot is made by the usual process of making lead shot, viz. : dropping the molten metal from great elevation or high tower. Some idea of the great value of this invention may be formed from the fact (vouched for by one of the largest marble dealers in Philadelphia), that a block of granite that took three days to saw by the old mode took but one hour by the new process The iron shot are much cheaper than the black diamonds used in the diamond saw, and are aid to be quite as effer

The Chinese Sensation at Beaver Falls.-A correspondent of the Pittsburgh Commercial writes to that journal as follows The first introduction of Chinamen, in June last, was the cause of much comment and die trust, which has not been lessened by the second and the third invoice of the same article. It is evident that somewhat of a panic has seized the people, and holders of property purchased from the agents of the Harmony Society, upon which a part has been paid, are from necessity anxious about the result. Real estate is inact ive, everybody from abroad partaking of the general feeling of fear regarding the future of the place. Chinamen are not aiders to material prosperity to the masses, however profitable they may prove themselves to be to their employers. A large number of the laboring peo ple who were employed in our manufactories have sought homes and employment elsewhere some because they were compelled to do so others, thinking that the employment of Chinese presaged an ultimate revolution in labor and wages, left before a final crash should come. Extreme opinions are formed, and harsh things are said, which, cast abroad, only add to the danger which would be averted. A fresh arrival to-day of Celestials will not tend to the allaying of fears, so long felt, of the ultimate result of the project. The new invoice is not a large one, but it is an adding to the number of unwelcome citizens, if citizens they may be termed. If they shall prove a success in the pensive. Moreover, as there is no shock works of the cutlery company, it is not unlikely other manufacturers may be induced to employ

OUR RAILROAD SYSTEM.

Relation of Mileage Completed Dec. 31st, 1879, to Area, Population and Value.

A				-				
	STATES AND TERBITORIES.	Rail-		Population	and valuation			
a	OTATES AND TERRITORIES,	in use.	Area of States, &c.	or pr	operty by us of 1870.	One r		ilroad to— and Value.
8	States.	miles,	8q. m.	pop.	Value.		No.	Value.
v	Alabama	1,839	sq. m. 50,722	996,992	\$155,582,595	9q. m.	542 1	#84 601
,	Arkansas	679	52,198	484 471	94,528,843	76.8	718-5	\$84,601 139,217
r	Camornia.	. 1.7900	188,981	560,947 587,451 121,015	269,644,068	116.3	368.1	173,879
V	Connecticut	907	4,674 2,120	587,451	425,433,287	5.1	592 6	469,055
e	Delaware	931	2,120	121,015	64,707,223 32,480,843	9.8	288.8	280,464
	Florida. Georgia Illinois .	9917	59,268 58,000	187,748 1,184,109	32,480,843	197:0	405.0	69,552 102,489
h	Illinois .	6 901	55,410	2,589,891	227,919,519	26:3	534 1	102,489
V	Indiana	3 820	33,899	1,680,637	482,899,575 668,455,044	8.8	368 · 5 438 · 9	69,975
٠.	Iowa	. 3,679	85,045	1,191,799	209 515 418	14.9	333.9	178,271
	Kansas	9.117	81,318	364,399	302,515,418 92,125,861	38.4	178.1	82,200 43,512
y	Kentucky. Louislana.	. 1,178	37,600	1,821,011	409,544,294	17.8	694.0	188,781
	Louisiana	568	41 846	726,915	253,871,890	72.8	1,279.8	446,077
n	Maine	922	31,776 11,184	626,915	204,253,780	34.5	677.4	921,583
	Maryland	861	11,184	780,894	423,884,918	13.0	905·7 887·0	492,607
it	Massachusetts	1,643	7,800	1,457,351	1,591,988,112	4.7	887.0	968,949
g	Michigan	2,997	56,451	1,184,059	273,242,917	18.9	395.1	90,838
	Minnesota Mississippi	. 1,800	88,531	439,706	84,135,332	80.4	237.0	45,802
1-	Missouri	0.022	47,156 65,850	897,929 1,721,295	177,278,890	47.7	83714	179,250
a	Nebraska	1 100	75,995	122,293	556,120,969	21.9	578 9	186,808
3-	Nevada	602	112,090	42,491	51,584,616	68·7 186·2	93·1 70·6	186,808 45,792 42,759
	New Hampshire	981	9,280	318,300	25,740,978 149,065,290	190.2	341.8	48,709
0	New Jersey	1.379	8,320	906,006	694.868 971	6.0	657.1	160,118
1-	New York	. 4.901	47,000	4,382,759	1,967,001,185	9.5	894.3	158,125 401,846
	North Carolina	1,316	50,704	1,071,361	180,878,622	88.9	814.1	99,071
d	Ohio	3,962	89,964	9 665 960	1,167,781,697	10.1	672.7	294,782
e	Oregon	1294	95,944	90,923 3,521,791 217,358	81,798,510	819.6	805.1	106,705
3-	Pennsylvania	. 5,787	46,000	3,521,791	1,319,286,042	7.9	608.6	997,965 1,757,401 139,222
	Rhode Island	139	1,306	217,358	244,278,854	9.4	1,568 7	1,757,401
y	South Carolina	1,321	29,385	705,606	183,913,337	55.8	583 9	139,222
e	Tennessee	1,083	45,000	1,238,520	258,782,161	28.4	795.5	160,412
-	Vermont	764	287,504 10,212	818,579	149,732,929	182.6	629.3	115,090
	Virginia	1 516	40,904	330,551 1,225,163	102,548,528 865,439,917	18:4	488.6	184,225
g	West Virginia	519	28,000	442,014	140 590 059	45:0	808·1	241,055 274,488
	West Virginia	2,219	58,924	1,054,670	140,538,273 333,209,838	24.8	475.3	150, 162
	Total States.,	68,095	1,950,171	38,118,953	\$14,021,297,071	28.6	559 7	\$205,907
	Territories.							with the
	Arizona		118,916	9,658	1,410,295			
· a	Colorado	557	104,500	39,864	17,338,101	188.1	71.6	31,127
-	Dakota District of Columbia	323	147,4 0	14,181	2,9:4,489 74,271,698	456 6	44.0	8,708
	District of Columbia		60	131,700	74,271,698		****	
e	Idaho	** ****	90,932	14,999	5,292,205			*****
r	New Mexico		143,776 120,201	20,595	9,948,411			?
8	Utah		80,051	91,874 86,786	17,784,014	eio:i	e0#.0	
	Washington		69,994	23,955	19,565,842	210 1	927·8 435·6	82,850
Ť	Wyoming	454	93,107	9,118	10,642,863 5,516,748	1,272 · 6 205 · 1	20.1	198,506
		701	50,101	9,119	0,010,148	400 1	40.1	12,151
•	Total Territories	1,770	965,082	442,730	157,689,661	545.2	250-1	79,090
	"Indian Country"	313	187,171	+160,000	135,000,000	288.0	316.8	111,757
8	Total United States	70, 178	3,103,374	38,655,983	\$14,913,486,739	442.1	550.8	\$202
9	• Included in Maryland.		† Estimated.	and a solution	4-14-14-14-14-14-1		000	-
1	COMI	ARISON	OF AMERICAN	AND FOREI	GN RAILROAD ST	STEMS.	Series Front II	
е							Inhabi	
8			Railroad		Ar	ea .	ants pe	
	Traited States		miles.	Populati		illes.	eq. m	mile.
2	United States		69,158	38,555,9	183 2,992	,879	14	48
t	Austria		5 965	40,111,9 85,943,8	100 202	,091 ,234	189	17
	France		10.333	36,469,8	75 901	,900	158	40 19
1	Russia in Europe		7.014	71,207,7			36	284
n	Great Britain		15,537	31.817	108 190	769	265	- 8
	Russia in Europe Great Britain Belgium		1,301	81,817,1 4,839,0	094 11	412	430	9
9	Netherlands		886	3,858,0	065 18	,412 ,464	235	18
t	Switzerland		820	2,669,	095 18	,233	175	18
n	Italy		3,667	26,273,	776 . 107	.961	225	29
-	Italy		490	1,784, 16,301,	741 14	1,553 2,758	111	34
	Spain		3,401	16,301,	850 185	2,758	90	54
e	Portugal Sweden and Norway		458	3,987,		,510	99	81
d	Green and Norway		1,049	5,860,		3,771	19	180
	Greece,		100	1 882,	000 11	,941	71	199

Meeting of the Western and Southern Railroad Association.

The Western and Southern Railroad Association met at the Southern Hotel, St Louis, on January 17. Hon. Thomas Allen, President, was in the chair, and Mr. H. E. Sharpe, acted as Secretary. The railroads represented, were the Hannibal and St. Joseph, the Kansas Pacific, St. Louis, Kansas City and Northern, Vandalia, electrode in a voltameter, condenses at least 150 Illinois Central, Chicago and Alton, St. Louis and Iron Mountain, Mobile and Ohio, Cairo and Fulton, Southeastern, Gilmun, Clinton and Springfield, Fort Wayne, Jackson and Saginaw, nade several experiments on the production of Elizabethtown and Paducah. The officers elected for the year 1873, were as follows:

President-Hon. Thomas Allen, President ron Mountain Railroad.

Vice-President-Albert Fink, of the Lousville and Nashville Railroad.

Secretary and Treasurer-Charles Payne, of the Lake Shore and Michigan Southern Railroad. Corresponding Secretary—H. E. Sharpe. Executive Committee—L. J. Fleming, Mobile

& Ohio R. R.; J. C. McMullen, Chicago & Alton; Edwin S. Bowen, Kansas Pacific; W. K. Muir, Supt. G. W., of Canada; Horace Scott, Jeff. Madison & Indianapolis.

On motion the title of the association was changed to The Railway Association of America. It was voted to hold the meetings hereafter twice a year, instead of annually, the time fixed for the regular meetings, the second Wednesday in May and October. The next meeting of the Association will be held on the 14th day of May, at the St. Nicholas Hotel, New York. Reports ere read by the secretary from several tees, on the following subjects: "National

On account of the change of name of the Asociation and the intention to take in members of Eastern roads, action on the report was postponed till the May meeting.

National Association of Agricultural Implement Manufacturers.—The National Association of Agricultural Implement Manufacturers met at Cleveland, Ohio, on the 14th inst. Members were present from most of the Northern States. The corresponding secretary presented numerous encouraging letters from manufacturers in response to the address sent them from the October meeting of the association. Resolutions were passed to shorten credits, reduce discounts on commissions to dealers and agents, and fixing penalties for cutting into A committee was appointed to memorialize legislatures on the subjects of lower freight and express tariffs on implements, and asking for laws to avoid locking up the money in county treasuries that is so much needed in business channels. The secretary announced large accessions of members since the October meeting. The association adjourned, to meet at Cleveland, on the thiru Tuesday in April.

Prof. Wm. C. Cleveland, head of the department of civil engineering in the Cornell University, died on the 16th inst., at his residence in Ithaca, N. Y. Prof. Cleveland was practiced his profession up to the time of being fifth competing port.

called to the place he occupied at the time of his death. His rare talents and knowledge in his profession attracted the attention of the university authorities at the beginning of selecting the faculty. Previous to this time he had never taught, but his connection with the university has been successful in the extreme. He was an ardent lover of art, and the best influences of its study were stamped upon his daily life, and made him one of the pleasantest of men to associate with students, and to exert a refining influence upon them. The loss of a man of so thorough knowledge in his profession is a severe blow to Cornell, and will be deeply felt.

The Precious Metals - Product in 1872.-The San Francisco Alta gives the following statement of precious metals produced during 1872 in the gold and silver bearing districts west of the Missouri river, furnished by the general superintendent of Wells, Fargo & Co.'s Express:

Colifornia. \$19,049,098 24
Nevada 25,548,871 09
Oregon 1,905,034 92
Washington 226,051 06
Idaho 2,514,089 78
Montana 4,442,134 90
Utah 3,521,020 09
Arizona 148 777 00 Utah.
Arizona
Colorado
Mexico (west coast).
British Columbia.

Grand total......\$62,236,913 89 The product for the year, \$62,236,913.89, is \$3,952,884.23 in excess of 1871, which was \$58,284,029-66. The increase is confined to and Neva a alone, some of calities falling off slightly. It is proper to state Time" or uniform system of time for rail-that our express communication is so limited, roads. "A National Telegraph." and knowledge so imperfect of Arizona, that and knowledge so imperfect of Arizona, that we do not consider the figures given for that Territory as reliable for the product of that

> An organization, composed of some of the most prominent merchants and business men of St. Louis, styling themselves the St. Louis International Industrial Exposition, was formed on Saturday evening. The objects of the organization are to develop industry, enlarge commerce, and to make known the relative standing of St. Louis among the cities of the world, and the progress it is making in the march of civilization. The capital stock of the organization is over \$1,000,000. It is the intention to hold an exposition some time during the coming Fall.

A writer in the Chicago Railway Review says: During the present year there are likely to be five competing coal and iron ports on Lake Erie, all within a limit of a little more than 100 miles. Erie, Pa., has built two coal roads; Ashtabula, 30 miles west, has one in operation to the Mahoning coal fields, and another nearly completed; Fairport, 60 miles west, has the Youngstown road through Painesville almost done; while Cleveland, 90 miles west, is already doing a large business in coal and iron by means of her present railway connection with the coal fields south, and the Tuscarawas Valley Road, built largely by Cleveland capital graduated at the Lawrence Scientific Institute and enterprise, has been carried west 25 miles, of Cambridge, Mass., where he resided and to the mouth of the Black River, creating the

Trade Report.

Office of THE IRON AGE, WEDNESDAY EVENING. Jan. 22, 1873. The principal topic of discussion during the week has been the bill introduced by Senator Sherman, on Thursday last, look ing to the resumption of specie payments. As chairman of the Finance Committee, Senator Sherman is supposed to represent the views of the administration, and as his bill is likely to take precedence over all other financial measures, it has been more carefully examined and more fully criticised than any other bill introduced during the present session. The first section of this bill, which embodies all its essential provisions, provides as follows

That on the 1st day of January, 1874, the Secretary of the Treasury is authorized and required to pay on demand, at the office of the Assistant Treasurer, in the city of New York, to any holder of United States notes to the amount of \$1000, or any multiple thereof, in exchange for such notes, an equal amount of the gold coin of the United States; or, in lieu of coin, he may at his option issue, in exchange for said notes, an equal amount of coupon or registered bonds of the United States, in such form as he may prescribe, and of denominations of \$50, or some multiple of that sum, redeemable in coin of the present standard value, at the pleasure of the United States, after ten years from the date of their issue, and bearing interest, payable quarterly in such coin, at the rate of five per centum per annum; and the Secretary of the Treasury may reissue the United States notes so received, or if they are cancelled, may issue United States notes to the same amount, either to purchase or redeem the public debt or meet the current payments for the public services; and the said bonds and the interest thereon shall be exempt from the payment of all taxes or duties of the United States, as well as from taxation in any form by or under state, municipal or local authority; and the ment of all taxes or duties of the United States, as well as from taxation in any form by or under state, municipal or local authority; and the said bonds shall have set forth and expressed upon their face the above specified conditions, and shall, with their coupons, be made payable at the Treasury of the United States.

So far as we can judge, this bill meets with general approval in business circles, although it has called out a good deal of factions and not in every instance intelligent.

tious, and not in every instance intelligent, newspaper criticism. We have not space in this issue to discuss the bill at length, but as a whole it seems to us a well considered measure, framed with due regard for the commercial interests of the country and well calculated to restore the national finances to a specie basis without violent shocks of any kind and without affording speculators an apportunity to profit by

shocks of any kind and without affording speculators an opportunity to profit by movements calculated to weaken the gold reserves of the Treasury.

The past week has been an uneventful one in Wall street. The money market has worked easily at 6 @ 7 per cent. on call and 8 @ 10 per cent. for prime endorsed commercial paper. The banks report considerable accessions of currency, especially legal tenders, as will be seen from the statement of aggregate averages given bestatement of aggregate averages given be-low. All indications are favorable for the immediate future, and the condition of the

immediate future, and the condition of the foreign markets warrants the prediction of continued ease in money.

The gold market has been strong, partly from natural causes and partly the result of speculative combinations among operators to advance the premium. The following will show the range of daily quotations:

							t	ı	ig	hest.	Lowest.
Thursday	 			 						112%	112%
Friday	 	 								112%	11236
Saturday											112%
Monday											118%
Tuesday											11334
Wednesday											112
									-		-

past two weeks :

	dan, 11.	Jan.	10.	Dinerences.
Loans				c. \$2,656,800
Specie	22,539,10	10 21,1	10,800 De	c. 1,428,300
Circul'tion	27,461.6	00 2,5	42,200 In	c. 81,600
Deposits	207,441.50	00 212.5		c. 5,146,700
Leg. Ten	40,876,70	0 44,4	20,900 In	e. 3,544,200
The m				le for the tables :
,	EXPORTS E	XCLUSIVE 1871.	OF SPECI: 1872.	E. 1873.
For the we	ek\$	4,607,757	\$4,006,015	\$1,586,333

Fre. reported 8,961,926	5, 409, 162	7,948,329
Since Jan. 1\$13,569,683 EXPORTS OF Total for the week Previously reported	SPECIE.	\$828,155
Total since January 1, 187		.\$3,028,388
1871. Tot. for week\$5,590,431 Prev. reported\$5,640,700		
Since Jan 1 \$11,331,338 Included in the imporchandise for the week a	ort of gen	
Anvils Brass goods Bronzes Chains and anchors	**********	42 5,747

Included in the			genera	l mer-
Anvile			950	\$3,69
Brass goods		*****	42	5,74
Bronzes			15	2,60
Chains and anchors			179	8,71
Copper				50,76
Cutlery			125	55,69
Gas fixtures				29
tłuns			99	4,07
Hardware			59	4,83
fron, pig, tons			2,005	69,65
H. H. bars			9,514	145,309
Iron, cotton ties			407	1,23
fron tubes				1.57
lrop, other, tons				42,88
Lead, pigs				63,35
Lead, toas				8,17
Metal goods			490	85,13
Naile				44
Needles				8,05
Old metal				6,90
Platina				2,26
Per. caps				6,80
Saddlery		2-1/1	11	1.90
Steol			4.574	64, 45
Spelter			524,24%	26,96
Silver Ware				1,57
Cute boxes, consider	Y2	*******	14,601	194.15
Tip. 907 siabs		*******	.86,444	11.80
Wire or consideration			979	10.41

Foreign exchange is quoted as follows
Prime bankers' sterling 60 DATS. SDATS.
bills on London 109% @ 109% 110% @1103
Good bankers' do 109% @ 109% 110% @1109
Prime com, sterling do. 108% @ 109% - @ -
Paris (bankers) 5'22% 25'23% 5'17% 25'183
Antwerp 5'21% @5'22% 5'16%@5'173
Swiss 518% @5'20 5'18%@5'15
Amsterdam 40% @ 40% 41 @ 413
Hamburg 96 @ 9634 97 @ 5/73
Frankfort 41% @ 41% 41% 41% 419
Bremen 116 @ 11634 97 @ 973
Prussian thalers 72 @ 72% 72% 723
Government bonds at the close were
strong. We quote:
Bid. Asked
U. S. Currency 6s
U. 8. 6s, 1881, reg
FT 9 8e 1901 c 11734 1173

U. S. Currency 6s113%	1143
U. S. 64, 1881, reg	116
U. S. 6s, 1881, c	1173
U. S. 6s, 5-20 reg. May and Nov 11436	115
U. S. 6s, 1862, C	115
U. S. 5-90 1864, C	115
U. S. 5-90 1865, c	1163
U. S. 5-30 1867, r. Jan. and July 115	1153
IT. S. 5.20 1965. C. Jap. and July 114%	1145
U. 9. 5-20 c. 1867 " 115)/	1153
U. S. 5-20 c. 1968,	1153
U. S. 10-40 reg	1133
U. S. 10-40 c	1133
U S. 5s of 1881, reg111%	112
U. S. 41 C11336	1183
Ce: tral Pacific Gold Bonds 99%	1003
The following were the highest and	low

The following were the highest a	nu jow-
est prices of stocks to-day :	Lowest.
N. Y. Cen. & Hudson Consolidated 105%	10434
Lake Shore 93%	93%
Rock Island	112
Wabash 78	72%
Western Union Telegraph 84%	8836
Milwaukee & St. Paul 52%	5236
Milwaukee & St. Paul preferred 77%	77%
Pacific Mail	7136
Erie 683%	62%
Dhio & Mississippi	46%
Boston, Hartford & Erie 8%	8%
Union Pacific 36%	36%
C. C. & I. C 38%	30%
Quicksilver	43%
II S Express	7536

GENERAL HARDWARE.

The demand is not large, nor is much business to be looked for till the large manufacturers of general goods get out their new price lists and discount sheets. Russell & Erwin Mfg. Co. and Sargent & Co. have theirs in press and will issue them in a few days. The Hart, Bliven & Mead Mfg. Co. have to-day changed the price of Sockets as follows: Silvered Plain, Extra Heavy Straight, Silvered Ball, and Philadelphia Ball Shaft Sockets, discount 15 and 5, instead of 5 and 5 per cent. Plain, Acorn, and Flange Pole, and Central Park Pole, Yoke Sockets, discount 10 and 5, instead of 5 and 5 per cent. heretofore. J. & Riley Carr announce that they have advanced the price of their extra heavy "Cast Steel" Horse Rasps 5 per cent. Files remain unchanged. Carriage Bolts are firmer. We quote Common discount 60 and 5 per cent., although large lots can be bought a good deal better. There is a marked improvement in the demand for Nails, and the card rate, viz., \$5 for 10d. to 60d., with the usual discount of 15 cents per keg on lots of 100, and 20 cents per keg on lots of 1000 kegs, is fully maintained.

The makers of Casters have agreed upon a uniform list and discounts. The following are the new list prices (as furnished us by Sargent & Co.), from which a discount of 20 and 10 per cent., cash, is taken by all

makers:	P	LATE CA	STERS.			
	•	All Ir				
Nos	1	2 8		.5	6	7
Per set	.10c		c 15c	17c		28c
	Pe	orcelain	Wheel.			
Nos		12 18		15	16	17
Per set	.16c	15e 18	c 22c	26c	30c	35c
	Lig	numvita	e Wheel			
Nos		22 23		25	26	27
Per set	.14c		c 22c	26c	30c	35c
		Brass W	heel.			
Nos		32 33	34	35	36	37
Per set	20c	32 33 23c 28	c abc	45c	57c	75c
		orn, Per	celain V			
Nos	.41		44	45	46	47
Per set	280	32c 36		50c	56c	70c
			umvitæ	Wheel		
Nos	.51	52 58		55	56	57
Per set	Dun	82c 36			56c	70c
			ass Wh			-
Nos	250		64 c 57c	500	66 84c	67
Per set	H Per	40c 49	elain W	70c	84c :	DT OI
. A	M Dra	es, Porci	CIMINI W	ncet.	mo	-
Nos Per set	91 de	95e 45	74 c 55c	65c	76 75c	77 95c
A I	Rena		mvitæ 1		100	out
Nqs	Q4	' rugua	OA.	OR.	QR.	87
Per set	32e	25e 48	e 55e	6ic	75c	950
2 01 000			ass Who		400	000
Nos 0	1 00	00	04	0%	NG.	97
Nos9 Per set8	Te 48	ie 56e	65e	80c	36	\$1 20
Lui boti	All Re	ann Rub	ber Wh	eal		gra ac
Nos101	100	100	104	105	106	100
Per set 4.c	50e	60c	790	90c \$	1:05	1:30
			OCKET (. 00
Diameter (f & No. 120, per s No. 122, No. 134, No. 134,	lookot	inah 2	4 41	/ 11/	13/	91/
No. 120 per s	er cher	49	58c 60	e 7ste	1% 810 \$	115.0
No. 199, **		330	38c 50	e 60e	70e	8:'c
No. 184, 45		836	e 38c 50	c 60c	70e	OUL
No. 125,	****	56it	60c 68	e suc	Bic 1	1.05
RO	UND D	EEP SOC	KET CA	STERS.		
Diameter of S No. 7, per se No. 10,	Socket	, inch, 1	136	136	134	13 ₆ 80c
No. 7, per se	3t	370	c 44c	480 70e		BUC
No. 20, No. 21,	***	65	e 75e	90c \$	1:10	1 35
P1	ANO E	ORTE CA	STERS-	IRON.		- 00
All Iron Non	9	9 Bre	as Whe	el Nos	1	9
All Iron, Nos Por set	60c. 7	c. Per	reet		1 25	1:50
	1	BED CAS	TERS.			
Old Nun				Vor. 0 o	ind 1.	
			or Jap			
tti in Won d	a d	9 in N	os ospi	1	4 01	í in.
1% in. Nos (Per set 16)	Ko 12c	Per sei	15e	16c 2	De .	in.
	1	Wood W	Theel	400		
Man Wa 1		O In N	080	1	91	/ In
1% in. No1 Fer set18	Sec.	Per sei	los0 t17c	18c	-7	10e
	Po	reelain	Wheel.			
1% in. Nos (1	Q in N	los0	1		
Per set	19c	Per sei	23c	25c		
		Brass W				
1% in. Nos 0		9 in N	ns 0	1	23	c in
Per set	36c	Per set	50c	54c	*	1-25
61	OBE T	PHERL B	ED CAS	TERS.		
All Iron 144	noh a	lo 0 inc	h Sign	ow set		
All Iron, 15, 1 Porcelain Wh Apple Wood	cel, 2	nch 45c	u, and p	d.		
Auple Wood	Wheel.	1% inch	, 22c	2 inch	35c.	per
				2 inch	35c.	per
Brass Wheel,	2 inch	, \$1 per	eet.		35c.	per
Brass Wheel,	2 inch	, \$1 per			, 83c.	per

The Steel and Iron Square makers have Double Waterproof Pistol, 1-10 by Case, 100 M. doubled their list, and now take from the E. B. Ground edge, new list 55 per cent. for full cases, and 50 per cent. for less than a full case, so that net prices are the same as before. The following is the new list:

No.	NAMES.	Width.	Price.
100 1 2 23% 3 4 5 6 7 7 8 9 10 11 12 13	Cast Steel for drafting. Cast Steel finish. Framing. Sup. Sup. Ex. Super Extra. Extra. A Brace. Plain. Extra 1 foot. Poin 1 foot. Cast Steel 1 foot. A Brace.	2 inch 2 inch 2 inch 2 inch 2 inch 2 inch 1½ inch 1½ inch 1½ inch 1½ inch 1½ inch	\$66.00 48.00 44.00 40.00 35.00 38.50 32.50 31.00 30.00 27.00 25.50 22.50 30.00 27.00 27.00 27.00 25.50 22.50
15 16	Bridge Builder Sap. Sup. Extra		180.00
	AMERICAN IRON 8Q	nches.	Per doz. \$6 00 10 00 14 00
No. 1, 5	Steel Rule	ches. x 1% x 1%	Per dez, \$16 50 18 00

The Eagle Square Co. (Lane, Gale & Co. agents), say that they have had a new graduator recently constructed in England, and the only one of the kind in this country, which enables them to turn out work adapted to the use of engineers, &c. They solicit special orders for these purposes, guaranteeing the greatest accuracy in any work furnished by them.

The makers of Metallic Cartridges have revised their list prices, as below. This list is subject to a discount of 50 per cent. It is furnished us by Wallace & Sons, agents for U. S. Cartridge Co. The prices of all the other goods named have also been revised. The discount of 50 per cent. applies only to Metallic Cartridges, the other goods being net. As a matter useful for reference, we append the list of arms to which each size is adapted:

REVISED PRICE LIST OF METALLIC CARTRIDGES.

No. 22, \$6 per thousand, adapted to Smith & Wesson's No. 1, Whitney's, Colt's Blue Jacket, XL, Foreband & Wadsworth's Revolver and Rifle, Star, Governor, O. K., Marlin's, Standard, Sharp's No. 1, United States Revolver, F. Wesson's, Elliott's Five-shot, Single-shot Pistol, Frank Wesson's and other Rifles. Remungton's Vest Pocket and Repeating Pistols and Rifle Canes.
No. 22, long, \$8 per thousand, adapted to Standard Pistol, Frank Wesson's, and other Rifles.
No. 25, \$8.00 per thousand, adapted to Bacon's and Blies' Revolvers.
No. 30, \$11 per thousand, adapted to Sharp's No. 2, O. K. and other Pistols and Rifles of this calibre.
No. 33, short, \$12 per thousand, adapted to Smith & Wesson's No. 14, Whitney's, Blue Jacket, XL, Forehand & Wadsworth's, Bacon's, Sharp's Fourshot, F. Wesson's, Starr's No. 2, Elliott's and Allen's Single-shot Pietols, Frank Wesson's, Ballard and other Rifles, Remington's Repeating Pistols, Double-action and new Focket Revolvers and Rifle Canes.
No. 33, long, \$12.00 per thousand, adapted to Smith

and other Riffes. Remington's Repeating Pistols, Double-action and new Pocket Revolvers and Riffe Canes.

No. 32, long, \$13:50 per thousand, adapted to Smith & Wesson's No. 2, Bine Jacket, XL. Pond's No. 2 and Sincie shot Pistols; also Frank Wesson's, Balland's. Forchand & Wadsworth's, Ballsand's. Forchand & Wadsworth's, Ballsand's. Patent Breech-Loading Riffes.

No. 32, ex. long, \$16:50 per thousand, adapted to Breech-Loading Riffes.

No. 38, ex. long, \$16:50 per thousand, adapted to Breech-Loading Riffes.

No. 38, hort, \$17 per thousand, adapted to Forchand & Wadsworth's, XL. Police Revolver, Victor and other Pistols, Frank Wesson's, Ballard's and other Riffes.

No. 38, lonr, \$18 per thousand, adapted to Steven's. Frank Wesson's, Robinson's, Ballard's, Ethan Allen's, Forchand & Wadsworth's and other Riffes.

No. 38, ex. long, \$24 per thousand.

No. 41, \$15 per thousand, adapted to Colt's National, Southerner, Forchand & Wadsworth's, Ballard's, Derringer's, Frank Wesson's Double-shot and Willamson's Pistols.

No. 42, central fire, adapted to the Russian Musket.

No. 43, central fire, adapted to the Remington Egyptian liffe.

No. 44, central fire, adapted to the Remington Egyptian liffe.

No. 44, lenry pair, \$24 per thousand, adapted to the Henry or Winchester Carbine and Riffe.

No. 44, lenry fair, \$24 per thousand, adapted to the Henry or Winchester Carbine and Riffe.

No. 44, lenry fair, \$24 per thousand, adapted to the Henry or Winchester Carbine and Riffe.

No. 44, lenry fair, \$24 per thousand, adapted to the Riff s.

No. 45, central fire, adapted & Wadsworth's and other Riff s.

No. 46, sentral fire, per sentence and Riffe.

No. 47, sentral fire, adapted & Wadsworth's and other Riff s.

No. 48, sentral fire, per thousand, adapted to the Various Pistols of '44 Calibre.

iff s.

44, short, \$22 per thousand, adapted to the varius Pistole of '42 Calibre. ous Pistols of '49 Calibre.

No. 44, How and ex. long., 26 per thousand, adapted to Howard, Robinson, Ballard, and many other Rifles of '41 Calibre.

No. 44, central fire, adapted to Smith & Wesson's No. 3 or New Model Army Revolver.

No. 46, central fire, adapted to Colt's Army Revolver.

volver.
No. 48, central fire, adapted to the Remington and Penbody Riffes.
No. 48, 524 per thousand, adapted to Remington's, 5, & W. Army Revolver and Kentucky Riffe.
No. 48, 130 per thousand, adapted to Remington's Army Carbine, and Ballard's Kentucky Riffe.
No. 48, Hammond, adapted to Rammond, Carbine 70. 46, Hammond, adapted to Hammond Carbine, 10. 50, central fire, adapted to the Remington Spr.ngfeld and Peabody U. S. Breech Loadin, Muckets.

Springhed and Yeardy Muskets Muskets No. 56, calibre, '46, \$40 per thousand, adapted to Spencer's Sporting Rifle.
No. 56, calibre, '50, \$40 per thousand, adapted to Spencer's Military Carbine.
No. 56, calibre, '52, \$38 per thousand, adapted to Spencer's New Model Military Rifle.
No. 55, calibre, '56, \$38 per thousand, adapted to Spencer's Ballard's and Joslyn's Carbines.

POWDER AND BALL PAPER CARTRID	GES.
Calibre,	Fer 1000, net.
Minie, for Springfield Muskets57-100 Round Ball, U. S. Musket, Model	\$17.00
Buck and Ball, U. S. Musket,	16.00
Model 1842	20.00
Army Holster Pistol44-100	12.00
Navy or Belt Pistol	10.00
Police Pistol	10.00
Sharp's Linen	200
Pocket Pistol	9.00
POIL-LINED WATER-PROOF, AND DOUBLE PROOF, CENTRAL FIRE, SPORTING, MILITA PISTOL CAPS.	

Warranted superior to the best imported and sold at a much lower price. Per M. G. D. and S. B. Plain, Full Count, Stamped, by MUSKET CAPE

MUSKET CAPS.

Musket Caps. Waterproof, 1-10 Tin Boxes, by Case, 100 M.

Musket Caps, Waterproof, 1-10 Paper Boxes, by case, 100 M.

Musket Caps, Waterproof, 1/4 Paper Boxes, by Case, 100 M.

80

Trimmed " These caps are packed 100 M. in each case, and he numbers correspond with the English sizes. In regard to Percussion Caps, Wallace &

Co. say in their circular:

"This country has been obliged to depend upon foreign made Percussion Caps, of the best quility, for sporting purposes. We are now manufacturing Caps which we guarattee to be equal to the best imported. We shall be pleased to hear from you with sample order."

Brown, Harris & Hopkins have taken the sole agency of the Burgess Scythe Rifles, of which they will always keep a good stock, and can ship direct from the factory

at West Morris, Conn., when more con venient. We quote from their circular:

PATENT STAMPED CORRUGATED BOTTOM COAL HODS

new price lists compared with the old:

No.	Names.	Width.	Price.
100	Cast Steel, improved	3 inch	\$66.00
1	Cast Steel for drafting.	2 inch	48.00
2	Cast Steel finish		44.00
236	Framing	2 inch	40.00
8	Sup. Sup. Ex	2 inch	85.00
4	Super Extra	2 inch	33.20
5	Extra	2 inch	32.20
6	A Brace	2 inch	31.00
7	B.	2 inch	30.00
23/4 5 6 7 8 9	Extra	11% inch	27.00
9	Plain	11% inch	25.20
10	Extra 1 foot	1% inch .	22 50
11	Plain 1 foot	1% inch	21.00
12	Cast Steel 1 foot	1136 inch 1	30.00
13	A Brace		27:00
14	B.	2 inch	25.20
15	Bridge Builder	3 inch	180.00
16	Sup. Sup. Extra		39.00
	AMERICAN IRON EC	QUARES.	
	1	Inches.	Per do

18.00 18.00 15'50 \$ doz New price..... Old price..... Galvanized. 15 16 .\$18.00 19.50 .21.00 22.50 No. 13 00 8 50 4 00 5 00 New price. Old price.

Being well known, they can always command a ready sale at remunerative prices. The Price for 1873 will be \$10 per gross, net cash. All orders at one time for 10 gross, 10 per cent. discount; 25 gross, 15 per cent.; 50 gross, 20 per cent.

Smith, Burns & Co. have issued a new catalogue of their goods. We notice that they have added a long line of Tinware to the list of goods mode by them. They

the list of goods made by them. They have reduced the list prices of their Coal Hods and Morning Glory Hods, and ar-ranged them so that they can take the same discount from both Japanned and Galvanized—a step which must prove of convenience to the trade. The following are the

FANCY FILLETED.18 16 ...\$18.00 19.50 No... New Price... 21.00 per doz. Discount on the above, 25 per cent. The Excelsior Polished Deep Fry Pans, made by this house, are well finished, and made of heavy iron. They are sold at a discount of 20 per cent. from the following list:

No......1 2 3 4 5 6 7 8 Per doz.\$3.70 4.00 4.70 5.30 6.00 7.00 8.00 9.00 Their combined Chamber and Commode Pail took the premium at the last Fair of the American Institute. It is sold at a discount of 10 per cent. from the following

18·00 20·00 % doz 15·00 17·00 " \$16.50 14.50 13.50

Dixon's American Graphite Pencils. manufactured by the celebrated Dixon Crucible Co. of Jersey City, are now ready for market. Their circular, which we ap-pend, will show the trade how the pencils are graded :

Trade Marks and Stamps on Dixon's American Graphite Polygrade Pencils.

A special stamp on all of our pencils will be a skeleton crucible. There will be no numbers to denote the grades, but letters instead, as follows:

to denote the grades, but letters alreads, as lows:
S. "Soft."—For heavy black marks, or for directing parcels. Too soft for the pocket or general use. S. M. "Soft Medium."—For general commercial or pocket use. The most popular grade. M. "MEDIUM."—For stenographere, draughtsmen, banks, book-keepers, physicians, and all fine desk work. A smooth, fine pencil that holds its point well. H. "Hard."—For civil engineers, architects, draughtsmen, &c. A very fine, clean line. V. H. "Very Hard."—For the finest lines, equal to a steel graver.

H. "Very Hard."—For the finest lines, equal to a steel graver.

All these grades yield easily under the rubber. It must be remembered that different hands require different grades of pencils, the same as they require different pens. The "S. M." will suit some parties for the use set down for the "M.," and the "M." suits many hands for general use. We find that even stenographers differ, some requiring a softer pencil than others. The "M." was specially designed for them, and suits the majority, as it does the majority of accountants in banks and offices, but the "S. M." is popular for general use. These stamps have all been registered as trade-marks stamps have all been registered as trade-marks except the "H.," which has been used before. The words "American Graphite" on Pencils we have also registered.

IRON.

American Pig.-The American Iron market is in a peculiar and unsettled state. The Lehigh furnaces remain in about the same frame of mind, refusing to sell except in a limited way to most favored customers. They have now run the price up to \$50 for No. 1, and \$49 for No. 2, at which there appears to be a dead halt, with few transactions and much astonishment on the part of consumers at the advance. Sales are reported at considerably lower figures, though there is so much mystery attached though there is so much mystery attached to sales that little reliable information can be obtained. There appears to be a growing feeling that the companies are rather overdoing the matter, and overreaching their own best interests in forcing up prices in the way they have. The tone of some of the companies is arbitrary and supercilious to the last degree, and complaints of bad faith are common. It must be horne in mind that the searcity in the mark borne in mind that the scarcity in the mar-ket is not caused by the largeness of contracts made, but by the refusal of the com-panies to sell. Still the feeling is general in well informed circles that Iron will rule firm in the immediate future, whatever course prices may take after the spring business is over. It was rumored early in the week that the Thomas Co. had disposed Musket Caps, Waterproof, & Paper Boxes, by
Case, 100 M.
Packed in cases of 100 M.

WATERPROOF CAPS.

Double Waterproof, Central Fire, extra heavy.
1-10, by Case 100 M.

Market Caps, Waterproof, Central Fire, extra heavy.
1-10, by Case 100 M.

Market Caps, Waterproof, & Paper Boxes, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, & Paper Boxes, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Market Phone Boxes, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Market Phone Boxes, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Market Phone Boxes, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Market Phone Boxes, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Caps, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Caps, by
Caps, 100 M.

To bothle Waterproof, Central Fire, extra heavy.

Market Caps, Waterproof, Waterproof, Market Caps, by
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cluded in the sales we notice 200 tons Allentown No. 1 at \$47, 250 tons do. at \$49, 200 tons No. 2 at \$45.50, 200 tons Crane No. 1 at \$49, and 200 tons No. 2 at \$48.

Scotch Pig.—The demand for Scotch Iron is restricted to the most pressing requirements of consumers by the extreme views of importers. The stock here is very light of all brands, and mostly in hands of speculators, who have their supplies in store, and do not appear to show any inclination to concede a particle. The wants of consum-ers, of course, are not urgent at this season, ers, of course, are not urgent at this season, so that but little movement is expected before just prior to the opening of navigation. We note sales of 200 tons Eglinton at \$50.50, from ship; 200 tons Eglinton and 300 tons Gartsherrie, on private terms. We quote: Gartsherrie, \$55.50 @ \$56; Glengarnock. \$53.50 @ \$54, and Eglinton, \$52 @ \$52.50, but these asking prices must be considered wholly nominal in absence of sales, although it is doubtful if any stock could be obtained at less figures.

Following are the prices of Scotch Pig Iron in Glasgow, as reported by Messrs. J. E. Swan & Bro., under date of Jan. 3:

GLASGOW BRANDS.

	No. 1	No. 3	NC. 4
Gartsherr.c	147.6	130/	
Coltness	150/	180/	
Summerlee	135/	127.6	197 6
Langloan	+150/	127.6	
Govan	128/6	126 6	125/
Calder	\$150 /	127 6	,
Shotts, Bessemer	160/	155/	
do Ordinary	140/	127/6	****
Carnbroe	137/6	127.6	125/
Wishaw	127/6	125/	120/
Monkland	198 6	126 6	
Chapelhall	138/	127/6	***
Clyde	198 6	126/6	****
Quarter—Clyde	130/	127 6	125/
Glasgow Warrants 3-5, N	1 9.5		
126/6.	10. 1, 40,	100, 04 /40	ac. o.
	ton owing		
*f. o. b. Glasgow, 1/ per	40 00		
WEST COAST BRANT	05-f. o. b. d	rdrossan.	
Glengarnock, (137/6	197.6	
Ardcer	AGD/ G	101/0	45 8
Eglinton.			
Lugar Branded Egli	nton 108 6	126 6	127/6
Muirkirk, Dranded Egin	HODE INC. O	140 0	141/0
Portland)			
Dalmellington	130/	127/6	120/
CURRENT RATES OF	FREIGHT ON	PIG IRON	
To From	Glasgow. F	rom Ardr	ossan.
New York		10/	
Boston	20/	12/6	
New Orleans	12/6	9/	
Baltimore		20/	
Philadelphia	20/	15/	
		-	

Bar.-There is only a moderate demand for Refined Bar from store, but prices con-tinue to be held with considerable strength.

tinue to be held with considerable strength.

Old Rails. — There is scarcely any movement in Old Rails at the moment, but prices are held very strong; in some cases above our quoted rates. We quote: Old English, \$57.50, currency.

Rails.—New English continue quiet, but firm, at \$72 @ \$74, gold. No transactions of importance have been reported during the past week. New American are steady at \$80, currency, from the mill. A Western mill has contracted for 6000 tons, future delivery, the terms of which did not future delivery, the terms of which did not

Scrap.-Some sales were effected carly Scrap.—Some sales were effected early in the week at \$50 from yard, but later this price was refused, and stock at the close cannot be obtained under \$52.50 @ \$55 for No. 1 from yard. Mixed lots from dock are offered at about \$45. We note sales during the week of 400 or 500 tons from yard, early, at \$50, 600 tons from dock at \$45, and a small lot Cast at \$37.

METALS.

Copper.—There is a falling off in the demand for Ingot Copper, and the market shows a trifle feeling of weakness, superinduced by cable advices from England reporting a weak tone and a trifle decline from late figures. Domestic Copper, however, is not quotably lower, the offerings being at about former prices, but English Best Selected is offered freely at a shade decline. The transactions embrace only about 350,000 lbs. Lake Copper, at 34½ c. @ 35c., cash, early delivery; 25,000 lbs. Baltimore, on private terms, and 220 lbs. English Best Selected, at 30c. @ 31c., the market closing at the inside price. Manufactured Copper and Yellow Metal continues steadily held at 43c. for New Sheathing, 45c. for Bolts and Braziers, 27c. for Bronze and Yellow Metal Sheathing, and 32c. for Yellow Metal Bolts, net cash.

Tin.—There have been advices received from England reporting an advance.

Tin.—There have been advices re-ceived from England reporting an advance of £4 in Straits, now quoted £146, but the demand here continues so limited that it has had but little effect on prices. English is scarce and held pretty firmly. We quote Straits 31½c., English 31½c. @ 31½c., and Banca 36c. @ 36½c., all gold values. Plates were quiet early in the values. Plates were quiet early in the week, and prices, in absence of demand, rather favored buyers; but later, under an improved inquiry, holders exhibited more strength, and we understand \$11 has been refused for large lots of fair brands of Charcoal Tin. We quote: I. C. Charcoal, \$11 @ \$11.25; I. C. Coke, \$10 @ \$10.25; Coke Terne, \$8.75 @ \$9.25; and Charcoal Terne, \$10 @ \$10.25.

Lead.—The general demand continues very light for Pig, and prices are wholly nominal at 6%c. @ 6%c. for ordinary foreign. Manufactured Lead still rules steady at 9%c. for Bar, 10%c. for Sheet and Pipe, and 16%c. for Tin Lined Pipe, less the usual discount to the trade.

Spelter and Zinc.—There is considerable improvement to notice in the demand for foreign Spelter, and holders have advanced their views to correspond with the lets advanced provider ables of selections.

mand for foreign Spelter, and holders have advanced their views to correspond with the late advance abroad. We hear of sales of 125 tons Silesian at \$6.87½ @ \$7.15, gold, the market closing at 7½c. @ 7½c., gold. Zinc is quiet, but generally held with confidence at 10c. @ 10½c. for Sheet.

Antimony.—Is quiet, and we only hear of small lots selling at about 14½c., gold, but holders generally ask 14½c. for Regulus.

The following is the review of the metal market, specially prepared for The Iron Age, by Messrs. Thomas J. Pope & Bro. :

Markets generally fairly active for the season. Prices firm, and the prospects of trade continue good. Stocks low, and manufacturers look for a very active business in February.

INCOT COPPER is unaltered, Lake, 8434c.

to 85c.; English, 81c.; the stocks of the latter here amount to only 180,000 pounds in

store.
Pro Inon is active, and prices range from \$49 to \$51 for future delivery No. 1 extra; No. 2 extra, \$48 to \$49. We note sales of several thousand tons reported at No. 2 extra, \$49; No. 1 extra, \$50, all year delivery.

ery.
LEAD.—Quiet at 6½c. to 7c., gold.
SPELTER.—Still higher in Europe. Quotable now at 7½c. to 7½c., gold, for extra

TIN. -Quiet and unchanged. Antimony. -141/2c. to 15c., gold.

PHILADELPHIA.

Messrs. LLOYD, SUPPLEE & WALTON, under date of Jan. 21st, write us as follows: There is no great activity perceptible in the jobing houses. Prices are being regulated, salesmen are preparing samples, and a general preparation being made for spring sales. It is now well understood we must enter upon the season of 1973 without many decided declines in prices of Hardware. The recent advances in the raw material have put to rest the uncertainty which existed in regard to the established prices which have recently been adopted. These prices having been adopted before the late upward tendency of iron, we vances in the raw material have put to rest the uncertainty which existed in regard to the established prices which have recently been adopted. These prices having been adopted before the late upward tendency of iron, we cannot consistently look for lower prices at present. Furthermore, we are informed by local manufacturers that prices are unprofitably low on many goods as they now exist. Manufacturers having refused orders in advance at reduced rates, whilst jobbers refused to place orders at 1872 prices, the year opened with but few orders booked; this of course will compel immediate contracts at present rates, which of course must counteract the feeling of weakness which existed during the last two months of 1872. During the last two weeks we have advices from abroad of advances in Cable and Trace Chains, with prospects of still further advances on Cable Chain; consequently we are are compelled to open the season with about the same prices we furnished in October last. Butcher's Files and Tools are quoted at a little lower prices in our market, without any change in cost of importation. We furnish, as present prices—Butcher's Mill Files \$5.75 to £, gold; Bastard and Taper, \$5.50 to £, gold; Butcher's Tools, \$5.50 to £, gold. Nicholson's Mill Files are held at prices of last year, \$5 to £, currency. German Halter and Coil Chain is held at list net, gold, with a discount of 10 per cent. for large orders. Other German goods remain without any material change. Philadelphia Carriage Bolts have advanced, and are held at 15 to 40 per cent. discount. Eastern Carriage Bolts are a little demoralized, and are at present 10 per cent. less than price of December. Bench Planes are held at 15 per cent. discount, being an advance of 15 per cent. discount. Eartridges, 40 per cent. discount and an advance of 10 per cent. Emerson's Razor Strops, 25 per cent. discount. Hay and Manure Forks are held at an advance of 10 per cent. Scythes, owing to competition of manufacturers, are placed upon our market at about the rates of las

PITTSBURGH.

PITTSBURGH.

PITTSBURGH, Jan 18.—The Pig Iron trade was moderately active during the past week, though the volume of business in the aggregate was less than that of the week preceding; this was not in consequence of any falling off in the demand, but because the market is stronger and holders generally are indifferent about selling at present prices, as they have become pretty strongly impressed with the conviction that prices are destined to rule higher—that it is only a question of a little time. On the other hand, consumers generally are anxious to buy, as the great majority of them closed the year 1872 with little or no stock, but at the same time they are unwilling to pay any advance, claiming, as they do, that, taking present prices as a basis, the raw material is higher, relatively, than the product; but for this difference between buyers and sellers, trade would have been more active, and until this drawback is removed it is probable that business will be a little slow. While the future course of the market, as a matter of course, is uncertain, the indications generally, at this time, seem to be in favor of the producer. It is very generally conceded that prices have touched bottom—that there is no probability of a decline; hence there are plenty of buyers at the prices which have been prevailing during the past two or three have been more active, and until this drawback is removed it is probable that business will be a little slow. While the future course of the market, as a matter of course, is uncertain, the indications generally, at this time, seem to be in favor of the producer. It is very generally conceded that prices have touched bottom—that there is no probability of a decline; hence there are plenty of buyers at the prices which have been prevailing during the past two or three weeks, and producers, comprehending the situation, feeling that they have the market pretty well under control, are indifferent about selling, as they are confident they have nothing to lose by holding. Forty dollars, 4 mos., has been, and is still, regarded as the standard price for No. 1 Mill Irons, yet it is now difficult to buy at that figure; there were some few sales of choice open Gray Red Short, at \$45, 4 mos., but there is a difference of from \$2 @ \$5 per ton between buyers and sellers, and until they can come closer together, the operations must of necessity be comparatively light, and business, in consequence, will be retarded. There is also considerable inquiry for Foundry Ir nas, but there is the same drawback here under \$47.50 (@ \$48, 4 mos., yet buyers generally seem unwilling to go above \$46; which it is stated is below what it would cost to lay it down at the depot here with freight added. The demand for this kind of Iron is likely to be heavy during the next six months, as most of the foundry men are reported as have in the present state of the market the foundrymen are carrying moderate supplies. Business at this season of the gardy. Metals—Ourstock of Pig Iron is easily estimated at \$500 to 400 to too to tons in first hands. Our quotations are largely nominal—say. Pig Iron, \$50 to \$52.50; Braziers' Copper, 30c. to \$8c.; Bar Iron, 4c. to \$1c.; Boller Iron, 50c. to \$6c.; Plate, \$6c. to \$6c.; Co. to \$6c.; Plate, \$6c. to \$6c.; Co. to \$6c.; Boller Iron, 50c. to \$6c. Plate, \$6c. to \$7c.; Lead, Pig, \$54c. to \$6c.; Co. to \$6c.; Co. to \$ likely to be heavy during the next six months, as most of the foundry men are reported as having plenty of orders, and some of them of a very formidable character. Wm. Smith & Sons were awarded a contract recently by the city for water pipe, which it is said will require 12,000 tons of metal. Orders are not coming in as freely for Finished Irons as was anticipated; nevertheless, business is improving, and a good

freely for Finished Irons as was anticipated; nevertheless, business is improving, and a good spring trade is confidently expected.

There was a meeting of the Western Bar Association on Wednesday last, the 15th, at which it was thought prudent to make no change for the present; however, the indications are that when a change is made it will be upward, in sympathy with raw material. The steel trade, although orders are not coming in quite so freely, is, nevertheless, anusually active for this season of the year, and prices are very firm, with indications of an

early advance. There were two very important meetings of those engaged in the iron trade here on Wednesday last. The first was the meeting of Western Bar Iron Association, in the forenoon, at which a committee was appointed to draft a paper expressive of the sense of the association in reference to the demands of the ore men, the same to be presented to the general meeting of manufacturers in the afternoon. In the afternoon there was a large gathering at the same place, of representatives of the various rolling mills in this section and the Western States. Mr. James I. Bennett presided, with Mr. E. C. Pechin as secretary. There were fifty or sixty of the largest rolling mills in the country represented—aggregating various rolling mills in this section and the Western States. Mr. James I. Bennett presided, with Mr. E. C. Pechin as secretary. There were fifty or sixty of the largest rolling mills in the country represented—aggregating a capital not far short of fifty millions of dollars. The committee appointed by the Bar Association presented an informal report, in which the dispute between the manufacturers and "ore men" was detailed, and suggestions made toward an amicable basis of settlement or relief. The chief sources of supply for iron ore are the Lake Superior and the Iron Mountain, Missouri, regions. On the 1st of January of this year, the iron manufacturers received circulars from the "ore men" in which they set forth that the price fixed for 1873 was \$10 per ton for Missouri, and \$12 for Lake Superior. The circular also set forth other provisions in reference to the ore, which in effect, the manufacturers say, put them at the mercy of the "ore men." By the new regulations, it is said, the manufacturers were required to receive the ore of whatever quality it might be, and at whatever time it might come, the ore men assuming no responsibility in shipment. There were other objections, but these were the principal, which the manufacturers proposed to resist. The manufacturers denounced the advance as exorbitant, but as the demand was in advance of the supply, they have been thus far compelled to yield to the monopoly. They further desired that inspectors, one for St. Louis, the center of the Iron Mountain trade, and one at Cleveland, for the Lake Superior trade, be appointed to inspect all ore—their decision to be final. It was thought in this way a uniform standard might be arrived at, and the manufacturers as well as ore men placed upon an equitable basis. All informal negotiations, however, seem to have been fruitless in arranging the difficulty, and the manufacturers coordingly resolved to have a ore men placed upon an equitable basis. All informal negotiations, however, seem to have been fruitless in arranging

market during the week has undergone no material change. There has been a fair trade demand for raw Iron at current prices. The supply of No. 1 Red Short Iron is limited, and for that description of Iron an advanced price has been obtained over last week's quotations. We are reported the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR

	ORE.	
	500 tons gray forge \$40 00-4 m.	
	500 tons gray forge 40 00-4 m.	
	500 tons gray forge 40 00—4 m.	
	500 tons gray forge 40 00-4 m.	
	500 tons gray forge 40 00-4 m.	
1	300 tons gray forge 40 00-4 m.	
i	120 tons gray forge	
1	100 tons gray forge 40 00—4 m.	
į	100 tons gray forge 40 00—4 m.	
Į	300 tons gray neutral 40 00—4 m	
1	150 tons close gray red short 40 60-4 m	
ł	100 tons close gray red short 40 00-4 m	
1	250 tons open gray red short 43 00-4 m	
ı	100 tons open gray red short 43 00-4 m	
1	10) tons open gray red short 43 00-4 m	
1	ANTHRACITE.	
ı	1,050 tons Chickies forge, at furnace\$40 00-casl	a
J	100 tons No. 2 foundry, from yard 44 00-4 m	
1	100 tons white red short, from yard 37 00-4 m	
ı	70 tons No. 2 foundry, from yard 43 00-1 m	
ı	50 tons No. 1 foundry, from yard 47 00-4 m	
ı	50 tons No. 1 foundry, from yard 46 00-4 m	
ł	300 tons neutral forge, from yard 40 00-4 m	
Į	100 tons gray forge, from yard 38 50-4 m	
l	80 tons No. 2 foundry, from yard 44 00-4 m	
į	10 tons Chickies No. 1 foundry, from	
j	yard 51 50—4 m.	
1	20 tons No. 1 foundry, from yard 48 00-4 m	
1	10 tons No. 2 foundry, from yard 45 00-4 m	,
Į	CONNELLSVILLE COKE.	
I	100 tons Dunbar white and mottled\$37 00-4 m	
1	50 tons Dunbar gray forge 40 00-4 m	
1	75 tons cold short white and mottled35 00-cash	à
1	50 tons No. 2 foundry 42 00-4 m	
l	BLOOMS.	
1	20 tons No. 1 Juniata\$120 00-4 m.	

.\$120 00-4 m 20 tons No. 1 Juniata.

SAN FRANCISCO.

JAN. 10.—Hardware—Trade is easing off considerably, as is usual at this season of the year.

BOSTON.

JAN. 18.—The Iron market has been quiet during the past week, but there is a constant upward tendency in prices. Latest advices by cable report a still further advance of £1 per ton in Refined Bar, but this is not confirmed. The market for Pig Iron is very quiet, and in the present state of the market the foundrymen are at a less to know, whether the buy. men are at a loss to know whether to buy or not. The stocks on hand at the American furnaces are immense, but they are held steadily and owners do not seem disposed to make any concession. The market for Scotch Pig is steady.—Com. Bul.

CINCINNATI.

Messrs. Addy, Hull & Co., under date of Jan. 20, write us as follows: Pig Iron.—Market quiet, with prices a shade easier in Forge and low grades of Foundry metal. Car Wheel Irons are in active request, and the demand is with difficulty supplied.

			HOT BLAST CHARCOAL.	71 3 1-1
	Hanging	Rock	No. 1 9 ton, . \$55'00 @	4 mos
	11	8.6	No. 2 88.00 @	54'00-4 mos
į	44	9.6	Forge 45'00 @	4 mos.

			0		-	******	-
Tennessee N	0. 1			54.00	@	4	mos.
· F	orge			44.00	@ 45	00-4	mos.
Alabama No.	1			55.00	@ 56	00-4	mos.
Missouri No.	1					00-4	
	. 2					00-4	
11		BLAST					2000
Missouri No.						-4	mos
ii For	ge	As		44.00	@ 45	00-4	mos
Ohio No. 1.	80			84-00	6 55	00 4	mos
" Forge.				41.00	600	-4	mos
Scotch Pig.	No 1			54:00	@ BS	00_4	mos.
peoten 1 ig,		D BLAS				00-1	шов
Handley Dos						.00 4	
Hanging Roo							
Missouri Kentucky Tennessee Georgia	44	44		00.00	(W 05	00-4	mos
Kentucky	44	44		00.00	· · ·		mos
Tennessee	**			60.00	Ø .:		mos
Georgia	- 60	**		60.00	@ 68	00-4	mos
Alabama	- 1 77	**		60.00	@ 63	.00-1	mos
Machinery a	nd For	ge		DR.OO	(0.00	00-	mos
Blooms			1	13.00	@ 116	00-4	mos
		-					
				* **			
		OUL					
Mr. GEO.	. H. I	HULL,	und	er da	ite o	f Jan	1. 20

Mr. GEO. H. HULL, under date of Jan. 20, writes us as follows: The market for Pig Iron opened dull, and has continued so throughout the week. Manufacturers are buying only to supply their immediate wants, and the sales in consequence are small. The usual time, four months, is allowed on quotations below: HOT BLAST CHARCOAL.
No. 1 F'dry, from Hanging Rock Ores . \$56.00 @ 57.00

84	8	44		40	- 64	45	53 00 @	55.00
6-6	11	Forg	e.	8.6	9.6	65	45 00 @	46.00
6.6				m Ten	nessee O	res	55.00 @	56.00
8.6	2	8.6		64	6.6		52.00 30	54.00
6.6	1]	Forg	e.	6.6	66		45.00 @	46.00
8.6				m Alab	ama Ore	85	57.00 @	59.00
66	1	44	64			in Ores.	59.00 @	60.00
			E	IOT BLA	ST STON	E COAL.	-	
No.	1]	F'dry	r, fre	m Mis	souri Or	es	55.00 @	56.00
	3	66 "		68	6.6	86	52.00 @	54.00
6.6	13	Forg	e,	44	6.6	44	41.00 @	45.00
				COLD BI	LAST CHA	RCOAL.		
Car	W	heel	from	Hangi	ing Rocl	k Ores	60.00 @	65.00
	8.6		66			es	59.00 @	60.no
	6.6		66				60.00 @	62.00
	6.6		8.0	Geor	gia Ores		60.00 @	65.00
	6.6		66				58.00 @	60:00
	66		6.6	Kent	ucky		58.00 @	60.00

CLEVELAND.

Messrs. CLEVELAND, Brown & Co., under date of Jan. 20, write us as follows: There is, practically, no change in prices to note since ours of the 13th inst. Trade is quite active for the season, and most of our mills have already entered sufficient orders to keep them running for some weeks to come. We herewith hand you the following as our market prices:

IRON. 4 6-10 rates.

IRON, 4 6-10 rates.
NAILS, \$5:35 rates.
SHEET, 6 7-10 for No. 24, other numbers in

roportion. Galvanized, 20 to 25 per cent. off list.

BALTIMORE.

Messrs. Wyeth & Brother, Iron and Steel merchants, corner of South Charles and Lombard streets, report us the following prices, under date of Jan. 21, 1873: Trade has been active for the past week, and quotation figures rule firm. The advance in the Western market has had its anticipated effect here, and some good orders have been booked at advance rates. Stocks continue much broken, and supplies are coming in slowly, owing to the close of navicoming in slowly, owing to the close of navi

FOREIGN. GREAT BRITAIN.

Messrs. J. Berger Spence & Co., London, Glasgow and Manchester, under date of Jan. 6th, 1873, report:

Giasgow and Manchester, under date of Jan. 6th, 1873, report:

Metals.—The new year has commenced most auspiciously for this market, values are improving and orders plentiful, the only drawback being the defiant attitude of the workpeople in some branches of our industries; it is hoped, however, some amicable arrangement of the questions at issue may be arrived at, and that the favorable prospects of the trade will not be sacrificed to carry out impracticable views, whether set forth by one side or the other. The inroads made into the stock of Scotch Pig Iron, which now stands at 194,000 tons, against 490,000 tons at the commencement of 1872, and the damping down of several furnaces through the inability of smelters to obtain sufficient supplies of coal and ironstone, have had the effect of advancing prices, and it appears probable that even higher rates will soon be attained. The Middlesborough furnaces are all pressed to their utmost, and smelters generally in that district atill adhere to the policy of restricted sales for forward delivery in the hope of obtaining higher prices as the year advances. The improvement in Copper is fully maintained, and some large sales have lately been made at our quotations. An increased inquiry for Tin has had the effect of advancing the prices both of Straits and English Ingot. Lead continues firm. The stock of advancing the prices both of Straits and Eng-lish Ingot. Lead continues firm. The stock of lish Ingot. insh ingot. Lead continues nrm. The stock of Spelter at London and the outports on the lat instant is reported as only 1701 tons, against 5451 tons on the lat of January, 1872; this has had the effect of hardening rates, and Silesian is now quoted at £23, 10/ to £23, 15/, with an upward tendency.

upward tendency.

1RON. — "Ayrosome" Yorkshire Pig Iron, nominal, No. 1, 102.6; No. 2, 100/; No. 3, 95/; No. 4 (Foundry), 94/; No. 4 (Forge), 94/ net cash, or 2/extra 4 months' bills. Scotch Pig, Warrants, 125/ to 127/. Staffordshire Bars, £12 to £13. Hoop Iron, £13. 10/ to £14. Gas Tubes, 30 per cent. off new list. Boiler Tubes, 5 per cent. premium.

5 per cent. premium. COPPER.—Nominal. English Tough Ingot, £96 to £97. Chfli Bars, £90 to \$91. -English Ingot, £145 to £146. Straits

TIN.—English Ingot, £145 to £146. Straits, £143 to £144.

TIN PLATES.—Best Coke, I. C., 34/ to 38/; Charcoal, I. C., 40/ to 45/ per box.

LEAD.—Best English Soft Pig, £21. 15/ to £22. Refined Red Lead, £24 to £25.

ANTIMONY.—French Star, £68 to £70.

SPELTEP.—Silesian, special brands, £23. 10/ to £24. English, best brands, £24 to £25.

J. F. Timmsen and Emile Jenny's An-nual Coal Review. (Condensed for The Iron Age.)

Hamburgh, Dec. 31, 1872.—Coal—Seldom has this staple attracted such general attention as it this staple attracted such general attention as it did this year, and many consumers were disagreeably surprised when, in February, prices reached a point from 15 to 20 per cent. higher than the previous year. And this was but the commencement of the rising tendency that was observable since. The descriptions most in demand, but searce, were Nut and Forging Coal, as well as prime gas and coking coal and smelting colors. The right he last counts of months commencement of the rising tendency that was observable since. The descriptions most in demand, but searce, were Nut and Forging Coal, as well as prime gas and coking coal and smelting cokes. During the last couple of months prices have slightly given way again. The import of Hamburgh has been 473,872 lasts, being a decrease of 38,000 upon 1871. Berlin 274 to £37 per ton, free on board with expenses the continued we weather for the past two months. A shipment is going for the past two months. As hipment is going for the past two months are the past two mo

Production, Consumption, Exports, and Stocks of Scotch Pig Iron, from 25th December, 1871, to 25th December, 1872,

	1872.	1871.	18	79.
			Increase.	Decrease
	Tons.	Tons.	- 10	
RODUCTIONFrom Returns from the Makers	1,090,000	1,160,000		70,00
ONSUMPTION. In Foundries	000,000	978,000 190,000		
(Quantity of Bar Iron made—1872, 223,377 tons;) 1871, 200,131 tons)	470,000	465,000	5,000	
ExportsForeign	616,983 224,695 74,372	512 479 303,494 54,097		
*	916,000	870,000	45,000	
STOCKS In Connal's & Co.'s Stores	106,919 87,081	859,860 12,865 117,975	1	
	194,000	490,000		296,00
Highest 76/6 77/6 90/9 93/7% 96/4% 107/10% 1 Average 74/7 75/8 85/8 91/11 95/1 99/7 1	uly. Aug. 37/ 134/6 42/3 126/ 08/6 121/	Sept. 136/9 129/2 121/6	120/1 9	ov. Dec 5/ 125/ 16/9 108/1 17/6 90/6
1872. Jan. Feb. Mar. April. May. June.	July. Aug	Sept.		ov. Dec
	29,116 21,54	7 16,471	7,218 23,	
Average Price. Average Number of Furnaces in Blast.		101	127	12

and vicinity drew from here but 27,000, and the consumption of Hamburgh proper and its immediate neighborhood hence amounted to no less than 447,000 lasts. Of this enormous import but a scanty stock remains, barely sufficient, were the winter to become a severe one. Our coal importers have at all times met the market squarely, and still higher prices have thus been avoided. Without this wise policy on their part, our port could not have taken as much. The year 1873 opens under unfavorable auspices. The proprietors of the mines in England are asking exorbitant prices in consequence of the extraordinary domestic demand—a coal famine existing in parts of Great Britain, and production being hampered by continued strikes. Our December import was but 34,529 lasts. We quote Welsh coals 54 to 55 marks the last of 3600 pounds.

change; Freight, 55/ to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 412; and 20 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 412; and 20 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 412; and 50 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 412; and 50 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 412; and 50 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 612; and 50 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 61/2; and 50 late, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 50 to 60/ per 20 cwts., at which it is in great request, but very scarce; Chips, 412 to 61/2; and 61/2

Ausberg & Co.'s Australian Metal Re-

port. (Condensed for the Iron Age.)

(Condensed for the Iron Age.)

PORT ADELAIDE, Nov 4, 1872.—On the 20th ultimo we received the news here that the cable which connects with the Port Darwin line had been repaired. The through communication to England and the rest of the world is thus completed. It is difficult to say what the effect of this great change will be on Copper and other Australian productions. Thus, we hear today, that this metal has been depressed to £86 to £87, while it nominally still commands £88 here for both Burra-Burra, and Wallaroo. Tin Piates £33 per cwt. Exchange; the banks sell at ½ per cent. premium, 60 days sight, and buy at ¾ per cent. discount.

Olyphant & Co.'s Chinese Metal and Coal Review.

(Communicated to The Iron Age, by Messrs. H.

H. Swift & Co.)

Hong Kong, Nov. 27, 1872.—Metals—Nail Rod Iron has in a measure recovered the decline previously quoted, and is now 5 to 10 cents dearer; Soft Bar is saleable at a reduction of 25 cents, but the market is not firm at the advance. Iron Wire is neglected. Steel is saleable at rates 10 to 20 cents better. Lead has been taken by speculators at figures 20 to 25 cents higher, but at the close there is less desire to buy being shown. Arrivals of Tin have made holders more desirous to sell, and prices are quoted down \$1. Tin Plates are likewise lower, and Quicksilver is obtainable upon slightly easier terms. Coals.—Arrivals have been only 420 tons English, to consumers, and the sales have been but 2500 of Australian at \$9.25 per ton, ex-ship. The wants of buyers are small, and without any speculative inquiry the market is quiet. H. Swift & Co.)

Latest Chinese Metal Telegram.

(J. W. Muller & Co.'s Private Despatch.) Shanghae, Dec. 28, 1872.—English Nail Iron, 3:35 taels; L B Lead, 4:85 taels; exchange on London, 6/34 against 6/1 18th instant.—The market is dull.

The Dutch Tin Market.

(Translated for The Iron Age from the "Nederlandsche Courant.")

ROTTERDAM, Dec. 24, 1872.—Tin—The market has assumed increased firmness, and sales can be reported of Banca, on the spot, at 85½ guilders, and spring "futures," from the next government auction, at 83½ to 83¾; Billiton, afloat, 80 to 81; "spot" held at 82.

ROTTERDAM, Dec. 31, 1872.—The demand for Tin continues dormant. Only one contract has been closed of Banca for delivery ex the coming

Latest Tin Telegram from Rotterdam. J. Knyper van Harpen to Ezra Wheeler & Co.— Communicated to The Iron Age.

ROTTERDAM, Jan. 21, 1873.—We would recommend purchases of Banca Tin at 86 guilders, and of Billiton at 84.

Gilfillan, Wood & Co.'s Singapore Tin Report. (Extracted for The Iron . 'ge.)

(Extracted for The Iron 'ge.)

SINGAPORE, Dec. 3, 1872.—Tin—In consequence of discouraging accounts from England, the price has declined to \$32.60 per picul. "Foong Hing" chop has found buyers for China at \$32.25 per picul. Shipments to the United States: Per steamer Surprise to New York, 1410 piculs Tin; per A. H. Wille, to Boston, 2003 piculs. Tonnage continues scarce. There have been no settlements for the United States; London and Liverpool, weight, advanced to £3. 5/. Exchange, 4/5% to 4/6 for credit bills at the close.

The Ceylon Plumbago Market.

(Clark, Spence & Co.'s Review-Condensed for The Iron Age.)

McCall Duncan,
Ferap, cks., 7; lots, 1
Naylor & Co.
Raila, 1667
Page Edward & Co.
Bars, 2568
Phelps, Dodge & Co.
Sheets, 1h2
Piersons & Co.
Roller, bdls., 120
Bars, bdls., 120
Bars, bdls., 120
Reve, Osborne & Co.
Scrap, tous, 29½
Robbins C. & Son,
Boxes, 70
Rivera J. de & Co.
Old wheels, 356
Smith G. A. & Co.
Scrap, tons, 100 Anvils, 90
Caces, 1
Cutlery, casks, 7
Beam & Murray,
Chains, che., 29
Casks, 1
Mdse, pkgs., 12
Hammers, cks., 3
Cases, 3
Booth W. R. & Co.
Chains, casks, 44
Hammers, cks., 2
Casks, 7
Barton, Alexander &
Waller,
Guns, cases, 1 Smill G. A. & Co. Scrap, tons, 100 Smith G. G. & Co. Bare, bdls., 400 Salomon A. H. Scrap, lbs., 16,900 Wasfelaer & Duystors, Iron hook naile, cks., 31 Barton, Alexander & Waller.

Guns, cases, 1
Cockayne J. W.
Cutlery, cases, 1
Carr H. W.
Cases, 2
Fuller Bros.
Casks, 8
Shovels, bdls., 4
Field A. & Co.
Mdse. pkgs., 154
Anvils, 66
Hilger Ernst,
Chains, cks., 19
Packages, 4
Harmar Wm. & Co.
Mdse, pkgs., 4
Hielder B. & Co.
Packages, 2
King H. & J. W.
Chains, casks, 6
Lau & Garlichs,
Mac. pkgs. 4

Iron hook naile, cks.,
31
Wallace W. H.
Sheets, 877
Waydell & Co.
Scrap, tons, 15
Whitney A. R.
Sheets, 568
Whitney C. W.
Flues, 326
Order.
Old rails, tons, 500;
pcs, 396
Bars, 3783 pcs., 396 Bars, 3783 Rails, 1119

Lau & Garlichs, 6 Lau & Garlichs, Mdse, pkgs, 4 Cases, 5 Lawton & Lenox, Wire bale ties, 1 328 Abbott & Howard,
Cases, 19
Barlon D. R. & Co.
Cases, 24
Bundles, 4
Cooke Jay, McCullough
& Co.
Bessemer rails, 568 Wire, bbls., 3
Laughland & Co.
Wire, cks., 1; bdls Bessemer rails, 568
Cockayne J. W.
Bundles, 104
Drexel, Morgan & Co.
Rails, 766 Meyer J. T. & Co.
Cascs, 6
Mcht's Dispatch Transportation Co.
Chains, cks., 7
Mdee, pkgs., 11
Mulford & Sprague,
Casks, 2
Cases, 7
Noyes, White & Co.
Cases, 5
Carks, 10
Patrick Ruchard & Co.
Casks, 5
Patterson Bros.
Ca ks, 1
Rosenfeld Bros. & Co.
Cases, 14

15 Meyer J. T. & Co.

Mdse. pkgs., 1 Van Wart & McCov,

Order. Wire, bdls., 60 Bolts, cases, 2

Iron.

Bussing, Crocker & Co. Plg, tons, 600 Burdett & Pond,

Pig. tons, 300
Holdane J. H. & Co.
Flucs, 100
Ives, Beecher & Co.
Scrap, tons, 27
Jarvis G. E.

Michelena B. Scrap, tone, 40

Mdsc. pkgs., 1 Cases, 10 Anvils, 95 te John G. & Bro.

Rails, 766
Hogan John,
Bundlee, 178
Cases, 56
Casks, 6
Hubbard, Lippincott,
Bakewell & Co.
Bundlee, 15c
Hattersley Jon.,
Packages, 2
Moss F. W.
Bundles, 37
Cases, 3
Bars, 8
Naylor & Co.
Bundles, 911
Slagg Joseph, Ca ks, 1
Rosenfeld Bros. & Co.
Cases, 14
Roosevelt S. & Co.
Casks, 1
Per. cape, cases, 1
Hammers, cks., 1
Russell & Erwin Mfg. Co.
Files, casks, 4
Russell, Howes & Co.
Nalls, cks., 3
Rirk W. H.
Cuttery, cases, 1
Sevmour W. N. & Co.
Files, casks, 3
Shaw J. M. & Co.
Casks, 2
Turnor Richard A.
Mdse, pkgs., 13
Tillotson L. G. & Co.
Casks, 2
Von Cleff Bros.
Mdse, pkgs., 1 Bandles, 911
Slagg Joseph,
Caecs, 38
Trippett John & Bros.
Bandles, 401
Van Wart & McCoy.
Bundles, 1120
Vosc, Dinsmore & Co.
Bundles, 233
Caecs, 7
Order.

Order. Rais, 593 Spring, tone, 53 Bundles, 1426 Bessemer rails, 1000 Tire blooms, 28 Tires, 77 Cases, 25

Metals.

Metals.

Bruce & Cook,
Scrap lead, cks., 20
Tin plates, bxs. 133
Tin slabe, 170
Baring Bros. & Co.
Lead, pigs, 5100
Bonrique & Dupuls,
Leaf zinc, cases, 3
Brown, Shipley & Co.
Lead, pcs., 700
Dickerson J. S. & Co.
Tin plates, bxs., 1767
Galway & Casado.
Berap copper, bbls., 2
Hart Lucius & Co.
Tin ingots, 300
Ives, Beecher & Co.
Scrap copper, tierces, Anvils, 95
Witte John G. & Bro.
Mdse, pkgs., 23
Western Union Tel. Co.
Galvanized wire, lots,
509
Wiebusch F.
Mdse, pkgs., 62
Order.

Norap coper, tierces, 2; ibs, 1100 Scrap brass, ibs., 277 Jansen & Co. Copper, blocks, 20 Naylor & Co. Tin plates, bxs., 519 Burdett & Pond,
Scrap, tons, 12
Congreve Chas. & Son,
Hills, 273
Fish plates, bdls, 1476
Currie W. & F. P.
Boiler flues, 256
Cooke Jay, McCullough
& Co.
R. R. bars, 2528
Drexel, Morgan & Co.
Rails, 1243
Griswold J. A. & Co.
Pig, tons, 100
Renderson Bros.
Pig, tons, 300
Holdane J. H. & Co. Naylor & Co.
Tin plates, bxs. 519
Phelps, Dodge & Co.
Tin plates, bxs. 2123
Lead bars, 4999
Rivera J. de & Co.
Scrap copper, bbls.,
17; tierces, 28; cks,
12; pes., 6
Salomon A. H.
Scrap lead, lbs. 23,536
Scrap copper, tbe, 12,
377
Scrap brase, lbs., 2856

Scrap brass, lbs., 2856 Ord

der.
Tin, bxs., 750
Tin and terne plates,
bxs., 4162
Copper, cks., 50
Scrap, copper, bbls.,
20

Lead, per., 087; pige,

OUR ENGLISH LETTER.

Review of the British Iron, Steel and

Coal Trades. (From our Regular Correspondent.) SHEFFIELD, Dec. 31, 1872. On this, the last day of the dying year, labor seems to have run riot and to have thrown down the gauntlet to the giant, capital. From almost every quarter of this "nice little, tight little" island reports come to hand chronicling strikes and wages disputes. First and foremosi on the list must be placed the threatened strike in South Wales, which affects no less than 70,000 men, or, with their families, no less than 350,000. This total is composed as follows, of the large iron works who insist upon the 10 per cent. reduction, or will close their works Dowlais, 10,000; Cyrfarthfa, 5000; Plymouth. 5000; Aberdare, 4000; Blaenavon, 5000; Hautyglo & Blania, 5000; Ebbw Vale, 10,000; Tredegar, 5000; Rhymney, 4500; Cromaman, 4000, and Brogden & Co., 4000, making, with 9 000 house coal miners, about 70,000 men. Of ft his total about 20,000 are colliers and miners and the remainder fron workers. Last Monday a meeting of delegates representing the men was held at Merthyr, when it was resolved not t o submit to the reduction proposed by the employers. The meeting was afterward addressed by Mr. Mundella, M. P., on the advantages of arbitration. After that gentleman's address the men resolved to withdraw the notice they had given for an advance, and decided, "in the interests of peace and conciliation," to submit the question to a council for arbitration, to be composed equally of employers and workmen. On the other hand, the masters refuse to have anything to do with arbitration, and met at Cardiff, on Friday, to consider what course they should pursue. Mr. Fothergill, M. P., of Ply mouth Works, presided, and the works repre sented were Dowlais, Abermang, Cyrfarthfa, Ebbw Vale, Rhymney, Aberavon, etc. A three hours' discussion ensued, the result being to confirm the previous resolution to reduce wages 10 per cent. up to the end of March, at any rate, when, if the state of trade warrants such a step, an advance will be given. A further conference in the matter is being held to-day, but the result has not yet transpired. In the meantime the workmen have been out at Merthyr and Dowlais since Saturday, pending the result of to-day's negotiations. Next on the formidable list is the colliers' strike in Scotland, which has been alluded to in my former communications, and which is now causing not only the greatest inconvenience, but a positive coal fam ine in the district. The men positively declare that they will not resume work under 10/a day, but, nevertheless, are willing to meet the mas ters in arbitration. Along the whole route of the Caledonian Railway, from Glasgow to Carstairs, comprising the chief coal district of Scotland, the supply of that mineral is pretty nearly nil, and, except near Coatbridge, none of the pits are being worked. Many of the blast furnaces have been run out, and, gener ally speaking, matters look very unfavorable indeed. Poor people are necessarily greatly inconvenienced thereby, no less than 1/6 to 1/8 per hundred weight being realized at Motherwell. This disastrous result ensue from the waywardness of the miners, who have broken loose from Mr. McDonald, their recognized leader, and are following the foolish lead of a man named Malcolm, under whose approv ing eyes intimidation, on a most extensive scale and of a most unblushing nature, is being practiced. In all probability serious rioting or complicated legal proceetings will shortly result. In the Dumbarton district, the iron makers have

been promised a reduction of their hours to 51 weekly, thus averting a general strike. At weekly, thus averting a general strike. At Johnstone (Scotland), Messrs. Merry & Cunninghame have advanced their iron stone, and shale miners wages 1/ per day. In the Fife district, the miners are well at work, but on an after January 1st will only work four days per week, so as to have a controlling power in their own hands. In the Wigan district (Lancashire), the coal masters have resolved that the pay shall take place fortnightly, on the Friday evening, and the Saturday following, it shall be the fortnightly "play day" instead of Monday as at present. What a beatified individual a miner is in this country! Happy men to have a fortnightly play day, beside a couple of Sunday's, 10/ a day and other advantages! In the Wolverhampton, Wednesbury, Tipton, and as a tyresent. What a beathed individual aminer is in this country! Happy men to have a fortnightly play day, beside a couple of Sunday's, 10 a day and other advantages! In the Wolverhampton, Wednesbury. Tipton, and other Staffordshire, &c., localities, the iron workers and their employers are busily and anxiously conferring on the wages question, and will, I think, be able to come to an amicable understanding. These examples will give some tangible idea of the troublous nature of the workers, and of the many difficulties existing here in the face of six months undisturbed working. At Newcastle, an association is being formed, under the Industrial Societies. Act, entitled. The Co-operative Mining Society, and the disturbed working. At Newcastle, and sesciation is being formed, under the Industrial Societies. Act, entitled, for the purpose indicated in member will have a sundiffered to the stated that the output of ceal last year was 120, 000,000. The promoters of the society argue that labor only received £15,000,000 of this sam, leaving the nice little sum of £30,000,000 as illuing for the pockets of the employers. It is stated that this undertaking is being promoted in carnest, and will doubtless prove a success. At Sheffield, the steel manufacturers are trying, by a side issue, to bring the coal masters to their senses. As usual, they close at Christmas for stock taking, but instead of only shutting ufor a few days, they intend to let the works remain idle until about January 14. The Bessemer steel departments are, however, necessarily an exception to this, some of the leading firms being so exceedingly busy that the Bessemer steel departments are, however, necessarily an exception to this, some of the leading firms being so exceedingly busy that the Bessemer steel departments are, however, necessarily an exception to this, some of the leading firms being so exceedingly busy that the Bessemer of the Steel Manufacturers' Association will have been held, and a decided course of action resolved upon. Speaking o

arbitration bill, compensation bill, truck bill, factory nine hours bill, the criminal law amendment act, and the standing orders for future congresses. 3. Future legislation: criminal law amendment act, truck bill, factory hours bill, compensation bill. 4. Questions for papers and discussion: trade societies—their necessity, objects and usefulness; trade councils—their necessity and utility. 5. Reduction of the hours of labor; limitation of over time; apprenticeships; plecework, as it affects workmen, employers and the public. 6. Foreign competition, and the introduction of foreign labor; their effects on British industry; emigration and unemployed labor; convict labor, as it affects certain trades in this country. 7. Co-operation and industrial partnerships. 8. Representation of labor in parliament—the best means affects certain trades in this country. 7. Co-operation and industrial partnerships. 8. Representation of labor in parliament—the best means to secure it. 9. How can the surplus funds of trade societies be best utilized for general benefits; trades' halls, their adaptability and advisability for the purposes of trade societies. 10. The application of arbitration and conciliation in trades disputes. 11. The necessity of providing a sufficient staff of efficient and practical inspectors to enforce the factory and workshops regulation acts. 12. Friendly societies, and probable legislation thereon, as a result of the Friendly Society Commission. 18. The employment of women and children in agriculture, factories and workshops; and the employment of soldiers in industrial trades and agricultural labor. The conference will, it is understood, be the most important ever held in this country. I shall have to recur to the subject at a future time.

The price of coal is not diminished, nor is if

The price of coal is not diminished, nor is it likely to be. In all the principal coal producing districts the demand is stated to be greatly in excess of the supply, partly on account of the activity of the iron, steel and hardware trades, and partly owing to the limitations of the output exercised by the colliers themselves in order to keep up their wages. During the month of November 662,538 tons of coal were exported, as against 1,053,402 tons in November, 1871—a decrease of 90,000 tons. From the Northern ports 448,909 tons were sent; Yorkshire, 79,770 tons; Loudon, 4437 tons; Liverpool, 69,350 tons; Severin ports (Wales, Worcestershire, &c.), 27,756 tons; and from Scotch ports, 82,370 tons. It may be noted as an interesting fact, that from January to November 11,321,808 tons of coal were exported from Great Britain Since last week's letter prices have continued to go steadily upward. The production of Scotch iron during 1872 is less by something like 100,000 tons than during 1870 and by 60,000 as compared with 1871, the exports being, roughly speaking, about 40,000 tons less than in 1871, despite which, the exports and home consumption have exceeded the production by about 40,000 tons. The stocks now in Connal's stores are 109,000, in the Firth & Clyde Canal Co.'s stores nil, and at makers' works 120,000 tons, the total, 229,000, being 436,000 tons smaller than at the close of 1870, and 261,000 less than at the end of last year. This "burning the candle at both ends" will not pay much longer. Some people in Glasgow have been making enormous fortunes, and fears are, in some strictly business quarters, being entertained lest in the general and fierce struggle between speculators, frommasters, colliers and miners, tradeshould be irretrievably ruined. These fears are not altogether devold of foundation. The rates given by me last week for Gartsherrie, Coltness, and other leading makes of Scotch Pig may still be taken as correct, no legitimate advance upon those figures being current as yet. The same remark is The price of coal is not diminished, nor is it likely to be. In all the principal coal producing districts the demand is stated to be greatly in £12. 10 . Rails at Middlesboro' fetch £11, and other descriptions are proportionately firm. In connection with the Cleveland fron trade, in which Middlesboro' naturally takes the lead, I cannot do other than notice a most interesting retrospective review of that locality for twenty years past, which has just been published in the Newcastle Chronicle, and which I send you in its entirety—commencing with the first blast furnace which was put up in 1852 by Bolekow & Vaughan, at Middlesboro. The article brings the subject down to the present time, when there are 130 blast furnaces in the district, with 20 others in course of erection. When these are blown in Cleveland will positively have more furnaces than Scotland. The pig iron made during 1872 in Cleveland was about 2,000,000 tons, which, at £5 per ton, furnishes a total value of £10,000,000. Next year the North of England alone will probably produce not less than 3,000,000 tons of pig, or equal to the total make of the country in 1854. Other districts—Wales, Staffordshire, Yorkshire, Barrow in Furness—have not been idle, but I think no other town in the Kingdom can boast of such rapid progress as Middlesboro'. Were I asked to name the three most growing towns in Great Britain, I should unhesitatingly say, Sheffield Barrow and Middlesboro', all of which are, by a rapid process of accretion, increasing amazingly in bulk and population. The Western Mail, Cardiff, Sheffield Independent and other local papers, have this week devoted some space to reviews of the iron trade of their respective localities, but as I have to some extent anticipated their figures and, in addition, have not space to go into matters more fully, I cannot recapitulate

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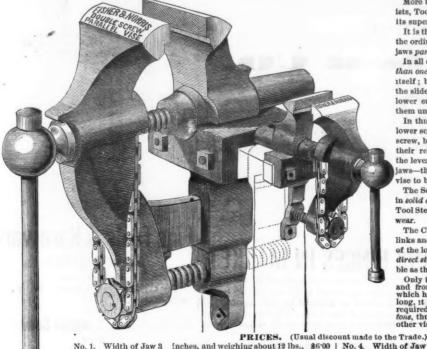
We have also commenced making a very superior Coach Makers' Vise. Our new Hand Vise is made of Solid Forged Steel, retailed at \$3.00, and is meeting with universal favor. We find on careful investiga-tion that by the pound we are selling lower than any other good Vise can be bought.

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ists, Tool Makers, Locomotive Shops, &c., has established its superiority over every other.

It is the only one which has all the strength and "grip" of the ordinary English Vise; and at the same time with the

jaws parallel at every point of opening.

In all other "Parellel" Vises using only one screw, les than one-third of the power applied is effective on the work itself; beside, in those vises the large waste of power on the slide from friction and the tendency to "jam," of the lower end of the jaw, if screwed up very hard, renders them unfit for heavy work.

In this vise the jaws are kept always parallel by the lower screw moving in or out exactly with the upper, lever screw, by means of the chain connecting both: also, by their relative position two-thirds of the power applied at the lever screw is received by any piece held between the jaws—thus enabling the heaviest work ever required of a rise to be done with this

The Screws are forged of the best refined iron, and work in solid cut thread boxes. The Jaws are faced with best Tool Steel, welded on, file cut, and properly tempered for

The Chain is very carefully made of case hardened inside links and rivets, and, acting only to regulate the position of the lower screw for different points of opening, has nodirect strain of the work upon it; it is therefore as durable as the other parts.

Only the strongest material is used in this manufacture, and from actual experiment on the six inch jaw vise, which has screws of 1½ inch diameter and lever 19 inches long, it has been found that applied at the lever Screw, it required to break either of the jaws, eleven and one-half tons, thus exhibiting a maximum strength far above any other vise of like size.

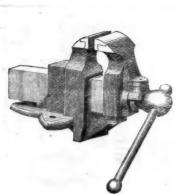
Width of Jaw 3 inches, and weighing about 12 lbs., \$600 | No. 4. Width of Jaw 5 inches, and weighing about 80 lbs., \$1800 Width of Jaw 4½ inches, and weighing about 50 lbs., 1400 | No. 5. Width of Jaw 6 inches, and weighing about 125 lbs., 2400 THESE GOODS ARE SOLD BY OUR AGENTS IN

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HOWARD BENCH VISE. PARALLEL





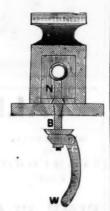


Fig. 2.

These Vises having been thoroughly tested during the past three years, and proving superior to any other Bench Vise yet produced, they are offered to the trade on liberal terms. An examination of the improvements is particularly desired.

The improvements claimed for these Vises, which are secured by Letters Patent, are: The malleable cast iron nut, which is rendered immovable by being set in the molten from, thereby doubling the durability of both nut and screw, for they are saved from the destructive grinding, cutting and bending action of the cross-strain which has always been a great evil heretofore.

Another improvement is the chilling of those parts of the slide sheath that come in contact with the slide, thereby avoiding much friction in its movements. These improvements apply to all of my vises; but additional and great improvements have been made in the Sucivel Vise, which, in the opinion of many, must result in its being the favorite for all uses. There is great strength in its circular base, so that its side parts may be employed for light anyll uses, which is often convenient. In the center of this base, as seen in Fig. 3, is set, at the time of its being cast, the strong bolt B; the nut of this bolt, under the bench, is brought to its desired position on the bolt by the cam wrench C, W; the handle, W, is now forced down, and the cam, acting upon the abort lever between the nut and the washer, exerts its very great and duplicate power in holding the Vise securely. So firmly does it hold it, that the combined force of several men exerted upon the Vise cannot move it from its position. And yet so convenient is the little machine, that this great power is instantly removed and applied.

The seat of the swivel is slightly concave, so that it shall rest upon the circumference of its base. Let it be observed that the nut of the bolt B is not turned in the least when the strain is upon it, and so the thread is saved from wear. The bolt is so formed and set that it cannot be drawn from the casting.

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ornamentation.

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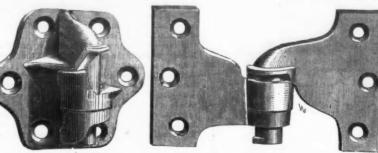
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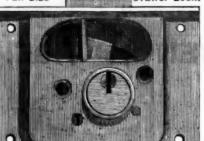
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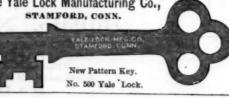
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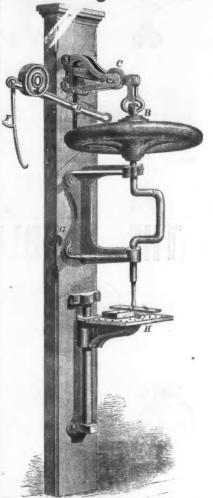
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Carriage and Tire, Norway Iron dis 40 % Eagle, Philadelphia dis 40 % Philadelphia Pattern, P. S. & W. dis 40 % Philadelphia Pattern, P. S. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 30 % Stove R. B. & W. dis 30 % Stove R. B. & W. dis 30 % Stove R. B. & W. dis 10 % Unnoa Nut Co. Machine dis 10 @ 15 % Horing Machines. Kellogg's dis 10 @ 15 % Snell Mfg. Co., Rice's Patent dis 15 % Snell Mfg. Co., Regular dis 15 % Snell Mfg. Co., Regular dis 15 % Snell Mfg. Co., Regular dis 15 % Snell Mfg. Co. dis 20 % Hovey's Angle 60 @ 6 25 Hovey's Angle 60 @ 6 25 Hovey's Upright. 4 25 @ 4 50 Morticing Machines, each 818 00 Hraces. Barber's Fatent dis 30 % 10 % Wilson Mig. Co. net @ add 5 % Spofford's Patent dis 37% % Noble's Patent dis 33% % Eartholomew's Patent dis 25 % Hung Hole Horers. Common and Ring. dis 20 % Enterprise Mfg. Co. dis 20 % Enterpri
Carriage and Tire, Norway Iron dis 40 % Eagle, Philadelphia dis 40 % Philadelphia Pattern, P. S. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 30 % Stove R. B. & W. dis 10 % Union Nut Co. Machine. dis 10 @ 15 % Horing Machines. Kellogg's. dis 10 @ 15 % Snell Mfg. Co., Rice's Patent. dis 15 % Snell Mfg. Co., Regular. dis 15 % Snell Mfg. Co., Regular. dis 15 % Douglas Mfg. Co. Regular. dis 15 % Douglas Mfg. Co. dis 20 % Hovey's Angle. \$6 00 @ 6 25 Hovey's Upright. 4 25 @ 4 50 Morticing Machines, each. \$18 00 Hraces. Barber's Fatent. dis 30 & 10 % Wilson Mfg. Co. net @ add 5 % Spofford's Patent. dis 37% % Noèle's Patent. dis 37% % Noèle's Patent. dis 37% % Bartholomew's Patent. dis 25 % Bartholomew's Patent. dis 25 % Bartholomew's Patent. dis 25 % Bartholomew's Patent. dis 20 % Enterprise Mfg. Co. dis 20 %
Carriage and Tire, Norway Iron dis 40 % Eagle, Philadelphia dis 40 % Philadelphia Pattern, P. S. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 30 % Stove R. B. & W. dis 30 % Stove R. B. & W. dis 30 % Stove R. B. & W. dis 10 % Union Nut Co. Machine
Carriage and Tire, Norway Iron
Carriage and Tire, Norway Iron dis 40 % Eagle, Philadelphia dis 40 % Philadelphia Pattern, P. S. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 30 % Stove R. B. & W. dis 10 % Union Nut Co. Machine
Carriage and Tire, Norway Iron dis 40 % Eagle, Philadelphia dis 40 % Philadelphia Pattern, P. S. & W. dis 40 % Philadelphia Pattern, P. S. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 45 & 5 % Plow, R. B. & W. dis 45 & 5 % Plow, R. B. & W. dis 30 % Stove R. B. & W. dis 30 % Stove R. B. & W. dis 10 % Union Nut Co. Machine dis 10 @ 15 % Horing Machines. Kellogg's dis 10 @ 15 % Snell Mfg. Co., Rice's Patent dis 15 % Snell Mfg. Co., Regular dis 30 % 10 % Hovey's Angle dis 20 % Hovey's Angle dis 30 % 10 % Hovey's Patent dis 30 % 10 % Wilson Mig. Co. net @ add 5 % Spofford's Patent dis 37 % % Noble's Patent dis 33 % % Bartholomew's Patent dis 33 % % Bartholomew's Patent dis 25 % Hung Hole Horers. Common and Ring dis 20 % Enterprise Mfg. Co. dis 20 % Ives' Tap Borers dis 20 % Butchers' Cleavers. Bradley's new list dis 10 % Bradley's dis 15 % Beatty's new list dis 15 % Beatty's dis 20 % Si 50 % \$40 00 Hart Mfg. Co. 1 & 2 & 4 & 5 & 6 & 7 & 8 & 9 & \$10 0 % \$31 50 % \$31 50 % \$30 00 % \$31 50 % \$30 00 % \$30 50 % \$40 00 Hart Mfg. Co. 1 & 2 & 3 & 4 & 5 & 6 & 6 & 5 & 6 & 6 & 5 & 6 & 6 & 6
Carriage and Tire, Norway Iron dis 40 % Eagle, Philadelphia dis 40 % Philadelphia Pattern, P. S. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 50 & 5 % Carriage and Tire, R. B. & W. dis 30 % Stove R. B. & W. dis 10 % Union Nut Co. Machine
Carriage and Tire, Norway Iron
Carriage and Tire, Norway Iron
Philadelphia Pattern, P. S. & W. dis 50&5 5 Carriage and Tire, R. B. & W. dis 45&5 5 Plow, R. B. & W. dis 30 5 Stove R. B. & W. dis 10 5 Union Nut Co. dis 10 6 Boring Machines, Kellogg's dis 10 6 15 5 Rell Mfg. Co., Rice's Patent dis 15 5 Snell Mfg. Co., Regular dis 15 5 Snell Mfg. Co., Regular dis 15 5 Douglas Mig. Co. dis 20 5 Hovey's Angle 50 0 6 25 Hovey's Upright 4 25 6 4 50 Morticing Machines, each 318 00 Hraces. Barber's Patent dis 30&10 5 Wilson Mig. Co net @ add 5 5 Spofford's Patent dis 33% 5 Bartholomew's Barbert dis 38% 5 Bartholomew's Patent dis 25 5 Bung Hole Borers. Common and Ring dis 20 5 Enterprise Mfg. Co dis 20 5 Enterprise Mfg. Co dis 20 5 Featter's mig. Co dis 20 5 Featter's new list dis 15 5 Featter's new list dis 15 6 Featter's new list dis 15 6 Featter's new list dis 15 6 Feattr's new list dis 25 6 Feattr's new list dis 15 6 Feattr's new list dis 25 6 Feattr's new list dis 30 5 Feattry new list di
Carriage and Tire, Norway Iron

ew York \	Vhol	esal
	dis 36 %	" 436"
Union Mfg. Co.'s Drilled Fast Narro	dis 25 %	Eureka, No. 1,
Whitney & Wait's Bronze Metal		" No. 2, K. F. M., 4½ i
G.D	40c	" 6-inc
Ely's E. B	1-10s, \$1.65c, gold	Fairy, Self Her National, 5-inc Myer's Fashio
Colt's		Fry Pans Tinned—
Metallic		19 doz\$3
Horse and Curry		Peck, Stow & Smith, Burns
Casters. Iron and Wood Wheel Plate		\$3.70 4° No. 1 5
Porcelain Wheel Plate		Hammer Maydole's Cheney's
Chain,—By the Cask. English Coil	net gold	Verree Yerks & Plum
### Charles Ch	7-16 %	Handles.
Trace, 7-10-2	. P pair, gold. 70c	Quakertown,
German Halter Chainnew German Coilnew	list, gold, dis 10 % list, gold, dis 10 %	Harness Judd's
Jack Chain, Iron		Fitch's
Chalk. White	#3 gross, 50c	Isaiah Blood. Shingling, N
RedBlue	🛭 gross, 75c	Claw, Lathing, Hunt's
Chisels.		Shingling, N
Socket Firmers dls 60 % Socket Framing dis 60 % Socket Corner dis 60 %	Cash in 30 days an extra 5 %	Lathing, Hurd's
Tanged Firmers	.dis 40 @ 40&10 %	Shingling, N Claw,
Spear & Jackson's \$5 00 to Clips, Axle.	Poold now list	Newark Edge
Norway or Best	dis 20 @ 30 %	Shingling, M Claw, Lathing,
Coal Shovels.	doz, \$ 85@1 25	Yerks & Plun Shingling, M
Wooden Handled	doz, 1 00 @ 2 00	Claw,
Smith, Burns & Co	dis 25 %	Simmon's Shingling, N
Japanned, \$9.00 9.75 10.50 12.0 Galvantzed, 13.00 14.50 15.10 17.5	0 13·50 per doz 0 19·50 "	Claw, Lathing,
Brass Racking, Lock& Globe		Broad,
Coffee Mills. Common Board and Box Better Grades	dis 15 %	J. P. Verree & Shingling, I
Increase Wilson's new li	st dis 10 %	Claw,
"Champion '	dis 20 %	Wrought Stra
Bemis. Excelsior.	dis 30 %	Providence P
Peck, Stow & Wilcox		Solid Shank, Socket, C. S.
Corn Knives and Cutters. Bradley's		Riveted Eye Planters'—Wi
Curry Combs. Hotchkiss' and Kellogg's, Iron and	Brassdis 10 %	Scovill Patt
Fitch's Ruggles'	dis 15 @ 20 %	Hooks.
Rubber		Wardrobe, Ja Hat and Coat
Cutlery. American Table		Wrought Stap
American Pocket Door Springs.		Wrought Stap Screw Hooks
J. Palmer Srawing Knives.	doz-dis 20&10 ± \$\frac{1}{2}\$ doz \$5 50	Horse Na Putnam's.
Bradley's	days an extra 5 \$	No
Drills. Morse's Bit Stock Drills		In lots 1000 l Ausable.
Ingersol's Ratchet (Wrought Iron). No. 1, 12-in., \$6 50 each; No. 2, 1		In lots of 100
No. 3, 20-in., \$11 00 each. Egg Heaters. Monroe's		Brundage.
Ashley's	z net 2 25 @ 3 60	In lots of 50
Pratt's Aerating	dis 10 «	No
Genuine Chester—Regular Nos		In lots of 10 Perkins Fin
Washington Mills—Regular Nos		No
Enameled and Tinned W Kettles	are.	Buffalo Forg
Sauce Paus, Glue Pots, &c Faucets.	dis 5 ≴	In lots of 1
Cork Lined, Wood	dis 50 %	Globe (Point
" Cork Stops		In lots of 100
Taylor's Pattern Petroloum Wood and Metallie"	dis 90&10 %	National (Po
Files. American Best	\$5 00 to £ net	In lots of 100 Vulcan.
Nicholson-Mill	5 00 to £ net	No
J. & Riley Carr's,	5 50 to £ gold	In lots of 50
Butcher's	5 50 to £ gold	New London
Hargreaves, Smith & Co.'s Jownti's	4 75 to £ gold	Great Western WB In lots of 100
"Western". W. K. & C. Peace's "Imperial"	5 25 to £ gold	Star Brand Morgan
R. Ibbotson. Beam & Murray, "Cyclops" Fisher, s	4 85 to £ gold	Horse Sh Burden
Goodlad's	4 00 to £ gold	R. I. Horse Sh
Fluting Machines.	\$7 00 each net	Mule Shoes
Cole	4 00 each net	Enamoled Brass
Knox, with 4-inch Rolls	6 00 each net	In lots of 500 1
O. K	6 50 each net	Butcher and S

esale Prices, Ja	inuary 22, 1873
" 4½" "	Mallory, Wheeler & Co,new list dis 40&2 % Base—Common
Eureka, No. 1, 7-inch Roll	" Plush Tipdis 10 % Elastic Endreduced listdis 10&10 %
K. F. M., 4½ inch Roll	Lanterns. Brady's Patent
Carpenter's Self-Heating	Ætna
National, 5-inch Rolls	De Beque
Fry Pans. Tinned— dis 20 ≤	Puscell & Famin Mar Co
\$\psi\$ doz\$3.00 \$\frac{1}{2}\$\$ \$\frac{1}{2}\$\$\$	Norwalk Lock Co. Branford Lock Co. Branford Lock Co. Nashua Lock Co. Trenton Lock Co. Trenton Lock Co.
Peck, Stow & Wilcox	Trenton Lock Co
\$3.70 4.00 4.70 5.30 6.00 7.00 8.00 9.00 per doz. No. 1 2 3 4 5 6 7 8.	Pad Locks, (Mallory, Wheeler & Co). new list dis 40 % Pad Locks, (R. & E. Mfg. Co).
Hammers. Maydole's	Revised list Sept. 10th, dis 40&2 % Cabinet—Eagle
Cheney'snew list net Verreedus 5 %	Cabinet—Gaylorddis 35 % Trunk
Yerks & Plumbnew advanced list dis 5 @ 10 % Handles.	Continental die 15 % Shepardsons die 90 %
Hammer and Hatchetdis 10 % Quakertown, Axe, Pick and Sledgedis 10 %	Meat Cutters.
" Hammer and Hatchettet	Miles' Challenge Family
Harness Snaps. Judd's	P doz
Hatchets.	No
Isaiah Blooddis 10 % Shingling, Nos. 1 2 3 9 doz 2 7 50 8 00 8 50	Hales'
Claw, " 123 9 doz 8 50 9 00 9 50 Lathing, " 123 9 doz 7 50 8 00 8 50	\$\partial \text{doz}\$
Hunt's	No
Claw, "128 P doz 7 75 8 50 9 25 Lathing, "123 P doz 7 5) 8 25 9 00	Perry's Champion (P. S. & W)
Hurd'sdis 20 % Shingling, Nos. 1 2 3 9 doz \$8 00 8 50 9 00	% doz
Claw, " 123 @ doz 9 00 9 50 10 00 Lathing, " 123 @ doz 8 00 8 50 9 00	No
Newark Edge Tool Co'sdis 25 % Shingling, Nos. 1 2 3	American
Claw, "123 2 doz 7 25 7 75 8 25 Lathing, "123 29 doz 6 50 7 00 7 50	Each\$6 00 \$9 00 \$14 00 \$15 00 \$30 00 \$75 00
Yerks & Plumb	Stebbins' Pattern
Claw, "123 # doz 7 50 8 00 8 50 Lathing, "123 # doz 7 00 7 50 8 00	Weed's Patent Self-Boringdis 15 % "without Auger Bitdis 40 @ 50 %
Shingling, Nos. 0 1 2 3 2 doz 7 50 8 00 8 50 9 00	Patent Self-Measuringper doz \$42 00—dis 20 %
Claw, " 123 \$\text{9} \ \doz 900 950 10 00 \\ Lathing, " 123 \$\text{9} \ \doz 800 850 900	Mouse Traps. Wood Choker
Broad, " 1 % 3 % doz 9 00 10 00 12 00 " 45 6 % doz 14 00 16 00 18 00 " 78 % doz 20 00 22 90	Nails. 10d Cut (Standard)nominally, \$\mathbb{P}\$ keg \$5 50
J. P. Verree & Codis 5 %	Nuts and Washers
Shingling, Nos. 1, 2, 3 10 doz \$4 98 7 35 7 87 Claw, "1, 2, 3 10 doz 7 55 7 87 8 40	Oil Stones. Washita No. 1
Lathing, " 1, 2, 3	Washita Slips 10 to 44c @ 50c
Wrought Strap and Tnet Providence Plate6 & 8 in. list 11c todis 5 %	Hindostan. ? D 6c net Hindostan Slips. P D 10c net
Hoes Solid Shank, C.S	Ollers. Olmsted's dis 25&40 ≤
Socket, C. S	Broughton's
Planters'—Winstedadd 10 % Scovilladd 38% %	Picks. Washoe R. R. Nos. 0 1 3 3 4 5
Scovill Pattern (Winsted)add 20 x	per doz. \$14.00 15.00 16.00 17.00 18.00 Washoe Cosl, " \$8.50 9.00 10.00 11.00 18.00 15.00
Belt	Picture Nails and Knobs.
Bench	Richards' Patent dis 40 @ 40&10 \$
Hat and Coat "	Auburn Bench and Fancydis 15 % Bailey's Patent Adjustabledis 15 & 10 %
WroughtHasps and Staples and Hasps, Hooks and Wrought Staplesdis 60 %	Howland's Bench and Fancy
Screw Hooks and Eyes, revised listdis 60 % Horse Nails.	Chapin's, 2d quality dis 15&5 2 Sandusky Too! Co. dis 15 %
Putnam's. No	Ogontz" dis 16&5 % Plane Irons. hst net
89c 93c 96c 25c 94c 98c	"Butcher's\$5 60 to £ gold—new list "Spear & Jackson's.\$5 00 to £ gold—new list
In lots 1000 lbs. dis. 5 %. Ausable. No	" Sandusky Tool Colist net
30c 27c 25c 24c 23c 22c In lots of 1000 lbs. 5 % discount,	Douglas Cistern, etc
Brundage. No	Rakes.
99 36c 34c 28c 29c 21c In lots of 500 lbs., dis 5 5	Cast Steeldis 95
American Pressed. No	\$8 00 \$9 00 \$10 00 \$11 00 8 10 19 14 teeth. Razor Straps.
22c 20c 20c 20c 20c 20c 20c in lots of 1000 lbs. 2 cts. less per lb.	Genuine Emersor (R. F. Badger)dis 33⅓ ≴ Hunt'sdis 25&10 ≴
Perkins Finished, (ready to drive).	Chapman
No	Rivets. Iron and Tinned
No	Rode
In lots of 1600 lbs. less 1c. per lb.; lots of 5000 lbs. less 2c.per lb.	Stair
Globe (Pcinted and Polished). No5 6 7 8 9 10	Rope. Manufacturers' List. Manila
31c 28c 26c 25c 24c 23c In lots of 1000 lbs., 5 % discount.	" ,% inch
National (Pointed and Polished). No	" Lath Yarn 10 10 18c 10 10 19c 10 10 19c
s 39c 27c 25c 24c 23c 22c In lots of 1000 lbs., dis 5 %.	Jute P D 12c Sisal M inch and larger, P D 16%c
Vulcan. No	" % inch P D 17c
83c 80c 28c 27c 26c 25c In lots of 500 lbs., 5 % discount.	Rules.
" 1000 lbs., 7% \$ discount. New London Horse Nails.	Boxwood and Ivory
No	Myer's Hat and Toilet, with stand per doz \$7 00
WB	Sand Paper—dis 7% @ 10% Beader & Adamson's (Flint) 00 to 1%\$4 50 % ream
Star Brand	" " 2,3% &8 5 00 " Assorted
Horse Shoes. Burden	Star
Burden	Sash Locks.
Mule Shoes 9 keg. / 85	Clark's
Kettles. Enameleddis 10 %	Championper gross \$13 00 @ \$15 00 Norwichdis 15 g
Brass	Sash Weights. Solid Eyes
Kaives.	Sausage Fillers. Perry's (P. S. & W)dis 5 \$
Butcher and Shoe, "Ames'"dis 15 s Hay and Straw, "Wadsworth's"dis 15 s In mother	No. 1 0 1 0 815 00 811 00
Mineral and Porcelain	saw Rods.

l	nuary 22, 10/3
	Iallory, Wheeler & Co
	Elastic Endreduced listdis 10&10 % Lanterns.
I	3rady's Patent
7	Yankeedis 10 % De Beque
1	Locks and Latches,
1	Branford Lock Co Tiet of Inne 9th
	Nashua Lock Co
1	Mailory, Wheeler & Corevised list, dis 40&2 % Pad Locks, (Mallory, Wheeler & Co).new list dis 40 % Pad Locks, (R. & E. Mfg. Co).
1	Revised list Sept. 10th, dis 40&3 % Cabinet—Eagle
1	Cabinet—Gaylorddis 95 ≤ Frunkdls 10 ≤
-	Continental
1	Ment Cutters. Miles' Challenge Familydis 10 %
1	No
	Dixon's (P. S. & W)dis 5% No
1	\$\partial \text{doz}
	70
1	No 80 88 60
1	⊕ doz
,	19 doz
	No
	American
	Each\$6 00 \$9 00 \$14 00 \$15 00 \$30 00 \$75 00
	Stebbins' Pattern
	Weed's Patent Self-Boring
	Patent Self-Measuring per doz \$42 00—dis 20 % Mouse Traps.
	Wood Choker
	10d Cut (Standard)nominally, P keg \$5 50 Nuts and Washers.
	3c off list
	Oll Stones. Washita No. 1. P 15 22c @ 25c Washita Slips P 15 44c @ 50c
	washita Shps
1	Olmsted's
-	Common Zinc, Bress and Copperdis 20 5
	Washoe R. R. Nos. 0 1 3 3 4 5 per doz. \$14.00 15.00 16.00 17.00 18.00
	Washoe Cosl, " \$8.50 9.00 10.00 11.00 18.00 15.00 Picture Nails and Knobs.
	Richards' Patent dis 40 @ 40&10 %
ľ	Auburn Bench and Fancydis 15 % Bailey's Patent Adjustabledis 15&10 %
	Howland's Bench and Fancy
-	Chapin's, 2d quanty dis 15&5 2 Sandusky Too! Co. dis 15 %
-	Ogontz"
	"Spear & Jackson's \$5 00 to £ gold—new list "Spear & Jackson's \$5 00 to £ gold—new list "Sandusky Tool Colist net
1	Pumps. Douglas Cistern, etc new list dia 25 \$
	" S. & Fnew list dis 20 x
1	Rakes. Cast Steel
1	Hazor Straps. Genuine Emersor (B. F. Badger)dis 23½ ≴ Hunt's
•	Chapman
4	Iron and Tinned
-	Rods.
4	American Patent dis 25 % Rope. Manufacturers' List.
2	Manila. % inch and larger W 10 18%c " % inch W 10 19c "
	" Lath Yarn 19 15 18c
J	" Hay Rope \$\mathscr{p}\$ 10 19c [ute \mathscr{p}\$ 15 12c [isal \mathscr{p}\$ inch and larger, \$\mathscr{p}\$ 15 16\(\varphi\) c
4	118al
1	Bules.
	8ad Irons. 9 b 5% @ 6c
1	fyer's Hat and Toilet, with standper doz \$7 00 Sand Paper—dis 7% @ 10≲
1	Seader & Adamson's (Flint) 00 to 114\$4 50 % ream " " 2,214 &8 5 00 "
8	tar
E	mery
Ē	Tark's
C	Champion
	Sash Weights.

	Saws, Man allied & M. S. Sin at Sense
	Spear & Jackson's \$4 to to &
	John Spear
	Inserted Toothdis 10 <
	All else
	Hand, Panel, Butcher, Back, &cdis 7% %
	H. W. Peace's Circularsdis 10 «
	Other kinds
	cularnew list dis 10 %
	Lightning new list. dis 20&13% & Riectric
	Scales.
	Scales. Fairbanks'new listdis 15 @ 20
4	Howe's
	National Platformdis 25 %
	Rurekadis 95 % Scale Beamsdis 90 %
-	No. 1 300 to 1900 lbs
-	No. 9 " "
6	American and National Second Cos
4	Iron
	Brass
)	Patent Gimlet Point Coach and Hand Rail. dis 10 %
	Scythes. Blood's German Steel, Grass
1	" Silver " doz 19 00
	German Glain 10 doz 14 00 Cast 10 doz 15 00
)	Young America
6	Johnson's German Steel, Grass 3 doz 9 25
)	German Grain doz 10 50
6	Cast Steel
0	Conn. Cutlery Co., new branddis 50 %
6	Ameslist July 1, '70; list net @ dis 21/ s
)	Sey See Ser See
6	Shovels and Tongs.
)	
	Sintes. Square Frames, R'd Corn'd, by casedis 60&10
6	States S
6	Less than a casedis 30
ć	Iron
6	Britannia
9	German Silver
	Teas
0	Less than a case
ŧ	Stove Polish. dis 15 @ 20 2
	Gold Medal p 27088 \$5:50
c	Steel net; full cases, 1 %
t	Nickel Platedadd \$2 50 @ \$4 00 F doz net
t	Star Try Squeres and Bevelsdis 20 %
	Full Weight American Iron dis 40&734 % Half Weight American Iron dis 70&75 %
6	Carpet
6	Finishing Nails% % % % 1 in. and over
	Trunk and Clout% % % % 1 in. and over
0	Copper Tacks
0	8%-8, 10%c
4	Tapes, Measuring
4	Half Weight American Iron
K	Tobacco Cuttersper 10 18c
*	Champion
1	Traps.
11 16	Hotchkiss dis 192 3
-	Blake's Patent
t	Trenton Vises, Solid Box,
t	111 to 160 Tbs
t	Peck, Stow & Wilcox dis 30 % Traps. Newhouse dis 17% % Hotchkiss dis 30 % Hotchkiss dis 30 % Blake's Patent dis 15 @ 30 % Viscos. Trenton Viscs, Solid Box 30 to 110 Ds 17c 111 to 100 Ds 18c 160 and over 21% c Peter Wright's 9 D 15% c, gold Wilson's Solid Box dis 10 % 39 to 160 Ds 18c 160 and upward 31c 2 meson's Parallel dis 35&10 % Backus, Parallel dis 25& Buffalo, Parallel new list dis 15 % Fisher & Norris' Double Screw Par dis 15 @ 14 & g Wire.
¢	39 to 160 lbs
¢	Jameson's Parallel dis \$5&18 \$
	Union, Parallel dis 254
3	Fisher & Norris' Double Screw Par. dis 15 @ If & 4
	Fisher & Norris' Double Screw Pardis 15 @ 18 & 5 Wire. Bright and Annealed
	Nos. 97 @ 36 dis 35 @ 40 x
ć	Galvanized
6	Cast Steel
2	Galvanized Telegraph, Nos. 8 & 9 9 b 10 @ 110
6	10 & 11 9 B 11 @ 12kc
,	Galvanized
-	Wrenches.
	Baxter's Adjustable "5"
	Cocs' Genuine
	Coes Pattern (Wrought) die 45 g
	Fence Staples
	All Reason and the Committee of the Comm
	METALS.
1	And the second s
	IRON DUTT : Bare, 1 to 1% cents per lb.; Seet

BON.—DUTT: Bars, 1 to 1% cents per lb.; heet Band, Hoop and Scroll, 1% to 1% cents per lb. Pro-vided, that none of the above Iron shall pay a less nate of duty than 35 per cent. Pig, \$7 per ton; Pol-ished Sheets, 3 cents per lb.; Wrought Scrap, \$8 per ten; Cast Scrap, \$6 per ton. All subject to a reduc-tion of 10 per cent. Railread. 70 cents per 100 lbs. Boiler and Plate, 1% cents per lb.

dis 40 5 Climax, 7-inch Rolls	dis 40 % dis 20 % aent dis 30 % dis 25 % ed dis 25 % al. dis 40 % arrow net dis 15 % dis 15 % dis 26 % dis 30 & 0.04 dis 20 % dis 30 & 0.04 di	R. Ibbotson. 500 to £ gold Beam & Murray, "Cyclops" 485 to £ gold Fisher,s. 475 to £ gold Goodlad's. 400 to £ gold Moss & Gamble. 525 @ 550 to gold Fluting Machines. Acme. 27 00 each net Cole. 575 each net Peeriess, No. 3. 400 each net Manvil, No. 9. 100 each net Manvil, No. 9. 100 each net Knox, with 4 inch Rolls. 500 each net " " " " 600 each net Excelsior, No. 1. 475 each net Excelsior, No. 1. 475 each net Diamond. 750 each net	Burden.	Assorted 4 50 " Star 9 ream \$3 50 Emery 9 ream \$7 00 @ 12 00 Sash Locks. Clark's. dis 25 @ 30 \$ Ferguson s dis 20 @ 25 \$ Champion per gross \$13 00 @ \$15 00 Norwich dis 15 \$ Sash Weights. Solid Eyes. 9 h 3/c Sausage Fillers. Perry's (P. 8 & W) dis 5 \$ No 1 0 9 dos \$15 00 \$21 00	Gray Forge	55 50 @ 56 58 50 @ 54 59 00 @ 54 100 72 00 @ 74 @ 50
	dis 30 x	Diamond7 50 each net	Mineral and Porcelain t Het Tone oth die and		Scrap tron.	58 80 @ 55

24		HE INON AG
Bar Iron from Store.	BRASS AND COPPER WIRE.	English
% to 2 in. round and square \$\to \$100 00	(Stub's Wire Gauge.) Gild'g and High Brass. Low Brass. Cop'r.	1 C 10x14, Prime Charceal
%x9-16 lm. " " " 105 00	Non. 0 to 20	14x30. 61 1 x 10x14. 61 12x12. 61
2½ to 8 in. " " " " 105 00 1 to 6 in. wide x ¾ and 1 in. thick " 100 00	Nos. 21, 22, 23	14x30 " @ 1 For each additional X add
114 to 6 in. wide x 1/2 & 5-16 in. thick " 185 00	Brass Wire straightened and cut, 4 cents advance. 10 % discount	COKE TIN PLATE.
wedish Iron.	FINE WIRE—NET PRICES. Gil andd'g	1 C 10x14 \$12·00
13/x% and %	High Brass. Low Brass. Cop'r.	19x19 12·50 12·00 TERNE PLATE, Prime, 2d qual,
1% to 5x% to % and % to 9-m. square. 145 00 6 to 19x% and % 155 00	No. 270.48 0.52 0.58	Charconl. Charconl. Coke.
Refined Iron. % to 3 in. round and square	No. 28	I X 14x30 13·50
1 to 6 in. wide x 3/ to 1 thick 105 00	No. 30	ZINC-DUTY: Pig or Block, \$1 50 per 100 l Sheet, 2% cents per pound. All subject to a red tion of 10 per cent.
1 and 1% x % and 5-16	No. 320.60 0.64 0.75	Sheet
Large Rounds. 2% to 2%, round and square " 122 50	No. 340·68 0·79 0·95	Paper Stock, Old Metals, &
8, 834 and 836 in	No. 35	Convey Many (Dealers' Selling Prices.)
Rods—% and 11-16, round and square " 110 00 % and 0-16, " " 115 00	No. 37	Canvas linen
7-16, " " 117 50	Ten cents per pound extra for Spooling.	No. 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
1 197 50	(Brown & Sharp's Gauge.)	Mixed woolens 2 @:
34 182 50 9-16 152 50	Plain to No. 20, inclusive\$0.56	Soft woolens. 1 Gunny bagging 2% @ Jute Butts 13% @
l and Iron. 1 to 6 in, x 3-16 to No. 12 " 192 50	Nos. 21, 22, 28, 2c. advance on List for each No. Nos. 24, 25, 26, 4c.	Kentucky bagging
Horse Shoe Iron. " 197 50	Above No. 26 special rates. Plain Tube, 1-4 inch	Rope enttings
1 v 3/ to 5/ " 117 50	54 65 3-16 65	Oakum junk, No. 1 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5
Ovals, Half Ovals and Half Rounds. % to 1% ton 130 00	All Mandrel-Drawn Tubes 5c. advance on List. Fancy Tubing 4c. advance on List above Plain.	Tarred Shaking
% and 11-16 140 00	English, Scotch, and Extra Patterns Fancy	Copper
7-16	Tubing to No. 20	Brass. 18 @ 21 Old lead, solid. 6½ @ 7
Nail Rods UB 10 To 9c	on List. Add to two cents a half-cent for each additional	Tealead. Wrought Iron Sheet iron 1 @
Warman Changs	cutting under two feet. 10% discount.	Cast iron
% to % square	Brass Door Rail, Polished52 cents per lb10 %	Zinc. @ 1 Pewter, No. 1. 27 @ 26 " No. 2 19 @ 13
Norway Bar. "7%c	discount. BELT AND HOSE COPPER RIVETS AND BURS.	Spelter
Spring Steel. 1 to 4 in, wide	Price per 2057 58 60 62 64 66 68 72 76c. Nos 7 8 9 10 11 12 13 14 15	Paints, Oils, Glass, etc
1 to 4 in, wide	Braziers Rivets, 51 cents per pound. Copper and Brass Rivets and Burs made to particu-	Paints.
24 4 4 - 9 16	lar sizes and pattern. The discount on the foregoing list will be 10 per	Black, lamp—Coach Painters Ordinary
No Clalle Steed	cent.	" Ivory Drop, fair
% to % x % to % " 8%c Plow Steel.	SERMAN SILVER MARKET METAL AND WIRE. Market Metal. Wire.	Bine, Prussian, mir to best
6 to 16 wide " 9%c	4 per cent, 12 inch, to No. 260'65 0'80 6 11 0'75 0'90 110	Chinese, dry
% to 1% x % to % Stock " 8%c	10 " "0'90 1'10 15 " " "1'00 1'25 18 " " "1'10 1'40	Brown, Spanish. 12
" 142 50	German Silver Sheets over 12 inches wide and	" Ultamarine
" 76 x No. 19 " 187 50 " 1 and 116 x No. 18 " 182 80	weighing more than 10 lbs	Paris good, 30c, best, 4
" 1% to 2 and 1x1% x No. 13 & 14. " 127 50 icroll from %x13 " 150 00		Mineral Paints. 1½ to Orange Mineral 143 Red Load American 91
" 10	at 50 cents per pound additions. German Silver Scrap, one-third less than net price of 12 inch Market Metal; German Silver Turnings, Filings and Chips, half the price of Scrap.	Orange Mineral 144 Red Lead, American 9, " English 10) " Venetian (N. C.) dry 10) " Vin oil asst'd cans, 11c, kegs, 8, " Indian, dry. 1
" ¼ and 5-16	*Brown & Sharp's Gauge is about two numbers	" Indian, dry
· 12 · 140 00	finer than Stuhe' Wire Guage.	Rose Pink. 1 Sienna, American, Raw. 44
** 8-16 130 00	per, 4 cents \$\ \mathbf{b}\$ is a manufactured (including all articles of which copper 18 a component of chief value), 45 \(\times ad valorem. \) All subject to a reduction of	Sienna, American, Raw
" 125 00 " 187 50	10 per cent. American Ingot	Cimoer, Burnt
	In per cent. American Ingot	In oil 16 @
" 3-16" 125 00 " 128 50	Braziers Copper, ordinary sizes, over 16 oz., per square foot	Trieste
14 5-16 129 50	over 12 oz., per square foot	White Lead, American, pure dry
" 18 " 180 00	highter	White, Paris, English, primein bbls. 2½ @ 2½ Yellow Ochre, French
	Segment and Pattern Sheets	Vermont in casks 12
190 00 190 00	Sheathing Copper, over 12 oz. per sq. ft 49c. " 12 oz. P sq. ft. & lighter 51c. "	"in oil
Sheet Iron. English. American	Locomotive Fire Box Sheets. 45c. 45c. Sheathing Copper, over 12 oz. per sq. ft. 45c. 18 Copper. 12 oz. per sq. ft. 45c. 18 Copper. 45c. No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.	" French (Paris) 113
- 40 4- 60 10 th 63/c 8c	14x48, by the case	Linseed Raw
21 to 24	14x48, by the case	Linseed Raw
97	Other sizes not larger than 30x60	Sperm, Crude
30	O MEIL S PAIRNT PLANISHED COFFER.	Seal, Extra Refined " 874
97 to 94	14 and 16 oz. and heavier 49c. By the case, 48c. \$\text{P}\$ 1b 13 oz. and lighter	Lard, Pure Winter
25 to 26	Boiler Sizes, 7 in., 14x52, 8 in., 14x56, 9 in., 14x60.	Cotton Seed, Crude
Nes. 8 @ 11. " 20c @ 22 c	20x60.	Neatsfoot, Winter
Nos,19 @ 16, " 20c @ 22 c	14 and 16 oz. and heavier	Asphaitum Sundries. Benzine. P gal. M
One piece Corrugated Sheet Iron Elbows,	LRAD—Detr: Pig, \$2 per 100 lbs.; old Lead, 1% cent per lb.; Pipe and Sheet, 2% cents per lb. All	Benzine. P gal. X Chalk
434 5 534 6 7 mch.	subject to a reduction of 10 per cent. Spanish. 6 %c gold German Refined. 6 %c gold English. 6 %c gold	Dryer, Patent, Am'n aest'd cans, 113cc., kegs, 12cc., 112cc., 113cc.
	English. @ 7½c gold Bar. dis 10 % @ 9½c	"Block Block
436 536 6 7 mch.	Tin Laned Pine dia 10 4 163/c	Sheet 33 @ K Sheet 36 Glazter's Points, Zinc. Gum, Copal 3
Brass.		Gum, Copal
(Brown & Sharp's Gauge.*) For the purchase of 100 pounds and over at one	Valued at 7 cents per lb., or under, 24 cents; over 7 cents, and not above 11. 3 cents per lb.; over 11.	Sheime, English
me:	cents per lh Railway Rars in part Steel 1 cent	Litharge in Punite Stone, selected Lumps 5@ ' powdered. 28% Putty in bladders 8%
ll Nos. to No. 28, and widths 14 in. and under 400	per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or prepumatic process, of whatever form or description, shall be classed as	" in bulk Rotton Stone, soft. English
Il Nos. to No. 28, inclusive and widths over 14 to	Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.	n bulk Rotton Stone, soft, English Sand Paper, crystal \$3 3 flint. \$4
ver 20 in. to 30 in., inclusive	American Cast Steel.	Whiting, Spanish
to 38, inclusive. li Brass thinner than 'No: 38 is Platers' Brass at 59c	Spring	French Window—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.
heets 24x48 in., and all sheets out to particular sizes and lengths	Machinery (round and square)	SINGLE. SINGLE. SINGLE. I. II. III. IV.
rinters' Rules	Sheet	6 x 8 to 7 x 9 \$8 00 \$7 00 \$6 50 \$6 0
heets wider than 30 in. and under 40 m	aw Plate, gang and X cut	8 x 10 to 10 x 14 9 00 8 00 7 25 6 5 10 x 15 to 12 x 16 9 75 8 75 7 75 7 0
ircular sheets, in diam. from 4 in. to 14 inclusive. Sociar sheets, in diam. over 14 in. to 20 inclusive. Sociar	Chrome Steel.	15 x 24 to 15 x 32 12·50 11·50 10·50 8·5 20 x 28 to 22 x 30 15·00 18·00 11·00 9·0
ircular sheets, in diam. over 20 in. to 30 inclusive 56c	Machinery	36 x 28 to 22 x 36
ircular sheets, in diam, over 40 in	Rnglish Steel—payable in gold, dis. 5 % cash.	28 x 38 to 26 x 44
cents W % more than High Brass.	do Evira Cast " 901/c l	34 x 58 to 34 x 60
fiding Metals, 7c. W W more than High Brass		36 x 60 to 40 x 60
FOR SLITTING: Metal in Width,	do Best Double Shear 19% c do do 3d quality 15% c do do 3d quality 11% c do do 3d quality 11% c German Steel, Best 11% c do Eagle 11% c do 3d quality 10% c Sheet Cast Steel, 1st quality 17% c do do 2d quality 17% c	signs, I. II. III. IV.
in, to % in., to No. 30, inclusive, 1c. W ib advance. in, to 1 in., thinner than No. 30, 3c. W ib advance.	do Eagle. "13%c	6 x 8 to 7 x 9 \$19.00 \$11.50 \$10.00 \$9.5 8 x 10 to 10 x 14 13.50 12.00 11.00 10.0 0 x 15 to 12 x 16
in. to 1/4 thinner than No. 30, Sc. 19 B advance.	Sheet Cast Steel, 1st quality	
in and less to Wo 80 90 90 9 advance		5 x 24 to 15 x 32 20 00 18 00 17 00
in, and less to No. 30, 2c. W B advance, in, and less thinner than No. 30, 5c. W B advance,	SPELTER—DUTY: In Pigs, Bars and Plates, \$1 50 per 100 lbs.—less 10 per cent.	00 x 28 to 29 x 30
in. and less to No. 30, 2c. P B advance. in, and less thinner than No. 30, 5c. P B advance, 10 s discount.	SPELTER—DUTY: In Pigs, Bars and Plates, \$150 per 100 lbs.—less 10 per cent. Silesian, cash. 6% @ 7c. gold American "7@11c currency	0 x 28 to 29 x 30
in. and less to No. 30, 2c. 10 in advance. in. and less thinner than No. 30, 5c. 10 in advance. 10 s discount. schap. igh Brass Scrap, 21 cents, net.	SPELTER—DUTY: In Pigs, Bars and Plates, \$150 per 100 lbs.—less 10 per cent. Silesian, cash	0 x 28 to 28 x 30
in. and less to No. 30, Sc. 19 B advance. in. and less thinner than No. 30, Sc. 19 B advance, 10 \$\infty\$ discount. \$CHAP. Igh Brass Scrap, 21 cents, net. W Bling, 25 cents, net. Turnings, Filings and Chips, half the price of	SPELTER—DUTY: In 1798, Hars and Plates, \$150 per 100 lbs.—less 10 per cent. Silesian, cash	0 x 28 to 22 x 30

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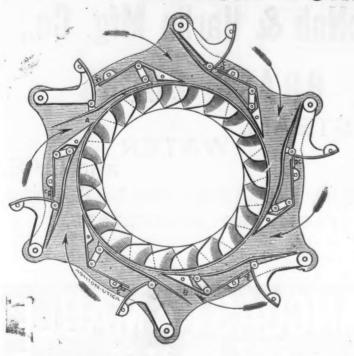
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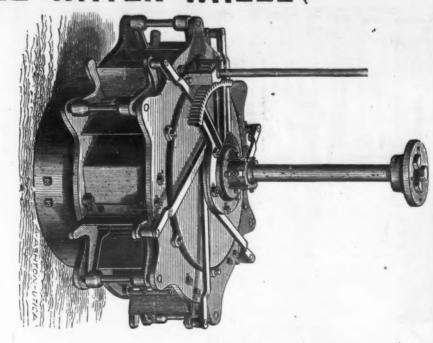
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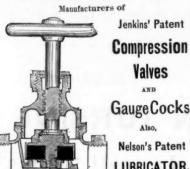
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Tubes cut and fitted to plans and specifications. 1529, 1581, 1533 & 1535 South 7th St., PHILADELPHIA.

WASHINGTON PIPE WORKS, Boston, January 17, 1872.

The Washington Pipe Works

STEAM & GAS PIPE & FITTINGS Of the best quality and at the lowest market rates THOMAS CUNNINGHAM. Address, Box 3042.

WM. S. CARR & CO.

Sole Manufacturers of Carr's Patent Plumbers' Goods,

Pumps, Water Closets, Fountains, Vases, &c. OFFICE AND WAREROOMS.

106, 108 & 110 Centre Street, Factory, Mott Haven, New York.

ROBBINS' PATENT PIPE WRENCH.



Specially designed for large Pipe and heavytwork, and for that use is the best universal wrench in market. Manufactured by

RICE, ROBBINS & CO.,

Pittsfield, Mass.

PHILADELPHIA.	Clout a
(Corrected weekly by Loya, Supplee & Walton.) Terms, 80 days. For 60 or 90 days' interest added at	Genuine Imitatio
10 per cent, per annum. ANVILS.	Coes In
Solid Cast Steel \$ 70 12% Peter Wright's \$ 70 12% Wilkinson's \$ 11%	Tafts W
Eagle, P D 11 cents, currencydis 15% APPLE PARERS.	No. 0 No. 19 No. 27
Reading	Tinned Bradlee
AXES. Mann'slight \$14 00, dis 10 %	Phila Chain
Hunt's, Light	Size. Inches.
Red Chieftian "net 14 75 AUGERS AND BITS. Potes! Manufacturing Co.'s Pite.	9-16 5-8
Bates' Manufacturing Co 's Bitsdis 20 @ 20&5 % Douglas' '' '' ''dis 20 @ 25 % Ives' '' ''dis 20 @ 20&5 %	11-16 13-16
Bonney's Pat, Hollow Augers dis 25 %	15-16
Ives	15-16 1 1-16 1 3-16
	All la Stud
Control's	
Bevin Bros. Mgr. Co. Hand Bells .dis 50 %	11/4-4
Western and Kentucky	1% to 4 4% to 6 1% to 6
Bates' Mg. Co., complete with augers dis 10 @ 15 g Douglas'	1% and 1 and 1;
Eastern Carriage Bolts	%, % a
Western dis 35&15 Philadelphia Carriage Bolts. dis 45 @ 45&5 \$ Wrought Shutter Bolts dis 35&10 \$ Cast dis 35&10 \$ Cast BRACES.	All size
Barber's dis 30&10 %	3½ to 6 1½ to 3
Spotlard dis 33% @ 37% 9 BUTTS.	% to 1) % to %
Broad dis 30 9	3 to 6 b
Wrought Table net Narrow list net Loose Joint new list dis 20 ;	1 to 1%
Cast Fast Joint, Narrow	2½ to 3½ to 1½ to 1
Lull & Porter's do	1% to 1 1% to 1 1% and 1 inch.
CHAINS. CHAINS	1 inch. % inch % inch
English Coil, less than cask add ½c. 9 b Common Chain	% inch
8-16 1/2 5-16 3/4 7-16 3/4 1n. Best Proof, by the cask, 560 lbs.; less than cask add 1/2c.	1 to 1% 2 to 2% 3 to 3% 3% to 9- % to 7- % unch
add %c. CHISELS. Socket Framing dis 60 @ 60&5 % Socket Firmer dis 60 @ 60&5 % Tang Firmer dis 40 @ 40&5 % Beaty's Framing and Firmer dis 10 @ 10&5 % CASTERS. CASTERS.	% to 9-
Tang Firmer	5-16 in
CASTERS dis 30&10 5	% to 1 % to 3
Reliance advanced March 7per doz \$72 00 Crown " 7" 72 00 Monitor " 7"	% inch
Universal " 7	% to 1; % to 3; % inch % inch
Common Box and Side advanced April 1872, dis 15 %	% inch Sheet I
American Pocket (best)	66 65
and Lamson & Goodnow Mfg. Co	All -
Hart Mfg, Co.'s. dis 60 @ 60&5 \$ Concave Adjustable Handle. dis 10 \$ Beatly. dis 10 \$ FILES. Nill Silve AND Silve	Boiler Heads Heads
Concave Adjustatis Haintie	Plow S Plow V
Bastard. Unsettled	RAI 1¼ by 1¾ by 1½, 1¾ 1½ by
"Taper." PUTING MACHINES. Royal, No. 1, 4½ Inch Rollers	1% by
Yerkes & Plumb's	Flat ba Heavy Light b
Strap and T. list net Bonney's Gate dis 20 % HORSE NAILS.	Hoops.
Ausable Horse Nails	of exch cent. fo
Putnam " 30 28 27 26 25 Brundage " 26 24 23 22 21 On Ausable Globe & Brundage 1000 D lotsdis 5 5	change lent.
KNOBS. Door (regular manufacture)	& Phil
Rim and Mortise	4.6c,
Rim and Mortise	Fence
Long and Short Cutter	Carriag Plow b
MATTOCKS	Machin Coach Bolt En
Lancoln's "	Square new Washe
NEAT CUTTERS AND STUFFERS. Stow Mfg. Co. Meat Cutters, new list	
Stow Mrg. Co. Stuffersdis 5 %	Skein
Stanley Rule and Level Co dis 30&10 % Stevens and Hubbard's dis 30&10 % Squares.	diam 1c. W
Iron " 1st net	Screw % in Screw
Baws. Disston's Hand, Mill and Circular dis 12½ % Wm. McNiece's Hand, Cross-Cut and Circular, new list	14 to 10 ne Strap t
list	6 mo Screw Duck n Cast ir
Brady Shovel Co	Bridge 1 to 2
Reading (planed face)per lb. 6c. Coquanock (polished face)	1 to 5
Gem STOVE POLISH.	
Onyx. \$5.00 Clark's Patent. dis 20 % Fergison dis 30 % Bonney's Improved. dis 25 % Iron dist May 8) SCREWS.	Wagon 10 in 12 12
Brace (ISC Mark 0)	14 16
Diagon D	5 cts. 7 by %. Wagon Wagon
Light add 10 % to list net	Single Wt. Ire
TACHS, CLOUT AND PINISHING NAILS.	Wagon
Half Weight Tacks	Wroug

10

		THE IRON AGE
1	Clout and Finishing Nails	Wrought Hammer Straps, heavy pattern 16c each L
	by the casedis 7% % TRAPS. Genuine Onelda—Newhouse listdis 15 %	Wrought Hammer Straps, heavy pattern. 16c each "light pattern. 13%c each Stay Chain Hooks. Se each Single Tree or End Clips. each %c Double or Center Clips, light. each 10c in heavy each 13c L Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets. Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 50 set15 % die. Wagon Box Staples, 1½ to 3½ in. to clinch
1	Coes Genute Oriental Activities Coes Genute Oriental Activities Coes Genute Co	Double or Center Clips, fight each 102 R
	Coes Imitation Wrought Bar. dis 40 % Mallenble Bar 40 & 10 %	Strap Bolts, Rods, Single Tree from Bolster Plates, M Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 50 set 15 % die.
0	Tafts Wrought Bar. 60 % Tafts Malleable Bar 65 %	Wagon Boy Staples Boy Iron to rivet on
1	Tafts Malleable Bar. 65 \$ No. 0 to 18. 4lis 15 % No. 19 to 96. dis 27% @ 30 % No. 27 to 36. dis 33 % @ 35 & Coppered 0 to 12. dis 15 @ 20 % Tinned Broom Wire. dis 10 @ 15 % Bradlee & Co., Office Nos. 19 & 21 South Fourth st., Philadelphia. Price list of Proved and Warranted Chains. Discount 3c. per fb.	
0	Coppered 0 to 18	Neck Yoke Eyes, each. Sign net Neck Yoke Eyes, with it line rings. Sign net Neck Yoke Eyes, with it line rings. Sign net Ring Botts, it, 1, 1, 2, and 1 it in, diam. B. 6c. Wagon Rivets, ex. large, oval and steeple head. it line many line is sufficient and line in the line is sufficient line in the line is suf
0	Bradlee & Co., Office Nos. 19 & 21 South Fourth st., Philadelphia, Price list of Proved and Warranted Chains. Discount & C. per fb.	11/4c Wagon Rivet, 3-16 inch diam., all lengths 13/4c Wagon Rivet, 3-16 inch diam., all lengths 13/4c Wagon Rivets & pulls in 5 th paper beyon 30 th or 16
% % %	Chaine, Discount %c. per fo. 8HORT LINK CHAIN. Size. Average Wt. Inches. Per Fathom. Tons. Ces.	Wagon and Hingo Naile 29 th net
0 5	36	Coupling Plates. Double Tree Plates. Tongue Plates. Neck Yoke Plates. 100 18 Ib 13c F
N N	9-16	Nock Yoke Plates
55 K	%35 10 8% 13-1640 12 8%	5-16 in., 18/sc; ¼ in., 14/sc. Nails, Brads, Spikes, etc.
64 24	15-16	CUT NAIL LIST.
N 24	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	8d and 9d nails, fence and brads
36 36	All larger sizes same price as 11/4 inch.	CUT NAIL LIST. 10d to 69d nails, fence, and brads. \$5 50 8d and 9d nails, fence and brads. 5 75 8d and 7d nails, fence and brads. 6 25 8d and 7d nails, fence and brads. 6 25 8d nails, fence and brads. 7 96 2d nails, fence and brads. 8 25 TOBACCO.
N 26 26	Stud Chain 2½ c. less than same size close link.	TOBACCO. State St
0	PITTSBURGH. From the Pittsburgh, Commercial.	2d
24, 38, 3	FLAT BAR. 1½ to 4 by 3 to 1 inch	7-8
34	4½ to 6 by ½ to 1 inch	8d. 6 50 FINISHING. 6 75 10d to 56d. 6 75
0 0	1½ and 1¾ by ¾ to ¾ inch	6d
7	%, % and % by % to % 5.0c	Cut spikes, all sizes. 5 75 Cut boat spikes. 6 25 Clinch nails, all sizes. 6 25
2	HORSE SHOS. All sizes	TERME.—Sixly day's time, or two per cent, discount if remitted within ten days from date of invoice. Prices subject to changes in market without
20%	NEAVY BANDS. 3½ to 6 by ½ and 5-16 inch	further notice.
10 20 28	1% to 3% by ¼ and 5-16 inch	2d, 1 inch; 3d, 1¼ inch; 4d, 1¼ inch; 5d, 1¾ inch; 6d, 2 inch; 7d, 2¾ inch; 8d, 2¼ inch; 9d, 2¾ inch;
976	% to % by % and 5-16 inch	6d, 2 inch; 7d, 2½ inch; 8d, 2½ inch; 9d, 2½ inch; 6d, 2 inch; 12d, 3½ inch; 16d, 3½ inch; 20d, 4 inch; 30d, 4½ inch; 40d, 5 inch; 50d, 5½ inch; 60d, 6 inch.
70 70 70	3 to 6 by 3-16 to No. 12	
00.00	1 to 13/4 by 3-16 to No. 12	BOSTON.
7.0	% to % by 3-16 to No. 12	Corrected by Fuller, Dana & Fitz, 110 North St., Boston, Importers and Commission Merchants.
e	2½ to 3 inch	Tin Plates. I. C. Charcoalper box @ 14 00
20 4	13a and 134 nch 6.7c 1 inch	" Coke
et ic	1 inch. 76- 24 inch. 876- 25 inch. 876- 26 inch. 876- 27 inch. 876- 28 inch. 876- 29 inch. 876- 20 i	Pig Tin, Banca, goldper lb. 871/4c
b .	% inch	English,
k	5½ inch .8% ½ inch .9 1c l to 1½ inch .9 1c 2 to 2½ inch .4% 3 to 3½ inch .49c 3 to 3½ inch .51c 3½ to 4 inch .5% ½ to 9-16 inch .5% ½ to 7-16 inch .5% ½ to 7-16 inch .5%	Copper Bolt
76	334 to 4 inch	" Ingot " 37c " 37c "
N H H H H	% inch	" Sheet and Pipe 945c " Old 6¾c Spelter, Silesian, gold 7¾c
20 00	% to 9-16 inch .5 % ½ to 7-16 inch .5 % ¾ inch .5 % 5-16 inch .5 % ¼ inch .6 % 2 3-16 inch .8 % 6 to 1½ inch .5 % ½ to 1½ inch .5 %	Spelter, Silesian, gold
20 %	% to % inch	Sheet Iron, Russia, goldper lb. 18c
0 0	% inch	" Galvanized " 11c@ 19c
000		Swedes Bar Iron, Flat, gold.per ton, \$135 00 @ \$145 00 Shoe Shapes, \$150 00 @ 145 00 Norway Bar Iron, Flats, \$150 00 \$145 00
94	% inch	Norway Shapes, gold, per ton, 150 00 @ Norway R'd, 2 in. to ¾ in. gld.pr.ton 140 00 @ "11-16 to ¾ in. "157 50 @
Or 96	" 15 to 20	" 5-16 to 16 in." 160 00 @ 172 50 @ 172 50 @
g.	\$\frac{7}{8} \text{ inch.} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	Norway Bur Iron, Flais, " 135 00 145 00 Norway Shapes, gold, per ton, 150 00 60 Norway R'd, 2 in. to ½ in. gld.pr.ton 140 00 60 " 11-16 to ½ in. " 157 50 60 " 5-16 to ½ in. " 160 00 60 " Nail Rods, Roll'd" 172 50 60 " UB. " 467 50 60 " Benzon " 162 80 60 " Vasa, " 157 50 60 " No. " 452 50 60 English Refined Bar Iron, " 100 00 60 Scotch Plg Iron, " 52 00 60 55 00 American " 45 00 60 52 00 Wrought Scrap Iron, " 42 00 60 45 00 Steel.
× ×	Boiler Plate Iron7.9	Scotch Pig Iron, 52 00 @ 55 00
% ir	Heads not flanging 7.1 Heads flanging 8.9 Plow Slabs 6.8	American " 45 00 @ 52 00 Wrought Scrap Iron, " 42 00 @ 45 00 Steel.
ır	Heads not flanging 7:1 Heads flanging 8:9 Plow Slabs 6:8 Plow Wings 7:3 RAILROAD IRON—COUNTERSUNK AND FUNCHED 1½ by ½, 7-16 and ½ inch 5:6 1½ by ½ and 5:16 inch 6:1 1½, 1½ and 2 by ½ and ½ inch 5:1 1½ by ½ inch 5:3	Steel
d	134 by 34 and 5-16 inch. 6-1 134, 134 and 2 by 34 and 34 inch. 5-1	Machinery 11c. Bessemer Steel 8% @ 9%c
0	Plat have and sounds and squares	Tire " 8c.
5% 9%	Flat bars for tire. 1c Heavy bands. 3c Light bands and wagon box iron 4c Hoops 5cc	Sleigh Shoe Steel. 63/c. 70e Calk 83/c. 83/c.
t	Hoops	BUFFALO.
0	Note or acceptance at sixty days, with current rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within fliteen days of date	Reported by Messrs. Sidney Shapard & Co.
3 5	cent. for cash, if remitted within filteen days of date of invoice. Payment to be made in New Bork exchange, United States Treasury notes, or their equivalent. No discount on bills of less than \$50.	Jan. 7d, 1873. Axes, Chopping—Bloed's
1	Heavy Hardware.	Augers—C. S. cut
X X	The following are the card rates of Lewis, Oliver	Jennings'
MM	Iron, standard list, assorted sizes, for large orders, 4.6c, card rate, 2 % off net. Iron wedges	Bells, Hand dis 50 @ 50&10 %
MMM	Norway Nall rods 9%c & D net Fence Pickets— 40c 20 ft fence loss 10 c	Monlders'dis 10 % Bolts—Carriage and Tire, dis. neckdis 60 & 10 %
A MA	4-6c, card rate, 2 % off net. Iron wedges	Braces, Bit—Barbar'sdis 30 & 10 %
* %	Plow blots	Braces, Bit—Barber*
MMM	Coach and lag screws, new list 15 % off net Bolt Ends, new list 15 % off net Square and hexagon puts and weak	Butte-Brass
26.24	Plow blots	Pin
W.W.	10. W ID extra for less than I keg of each size. Harrow teeth, in lots of I ton or more, I in. diam. 6c; % & % in. diam. 6c: % in. diam. 64c w h.	Wrought Narrow net Broad, Loose Joint net Broad, Loose Joint dis 15 %
3436	Patent Headed Harrow Teeth, packed in casks 3/c extra 2 b net.	Belting—Rubber
MM	Skein bolts, in bulk, in lots of 1 keg or more, %in, diam. 9%c; 9-16 in. diam. 10%c; % in. diam. 11%c. 1c. P D extra when less than 1 keg of each size is	Beaters, Egg, " Peerless"
et	ordered	Bung Borers—"Enterprise" dis 20 % Chalk—White, Carpenter's per gross, 50c
% W	Screw Hook-and-Eye Hinge, % to 1in. diam. 10%c; % in. diam. 11%c; % in. diam. 13%c % fb, net. Screw and Strap Hinges, in lots of 50 pairs or more, 14 to 36 in. long, 8c; 8, 10 and 12 in. long, 9%c % fb, net.	Crayon School
* *	D net.	" " " " " " " " " " " " " " " " " " "
* *	Screw nitening rings	Castings—Malleabse. B. 11c Cutters, Meat—Haie's Patent dis 10 g
st %	Bridge and Roof Bolts— 1 to 2 in, diam, over 8 feet long	Elbows—Corrugated 8 5 5 5 5 5 5 6 50 dis 10 %
e. e.	%, % and % in diam., over 4 feet long 7%c	Hussia. 10-00 13-00 13-00 14-00 Faucets—Wood, Cork Lined dis 50 25 50 & 10 %
00	WAGON HARDWARE,	Friezers, Ice Oream—"Champion" dis 53/4 % Gates—Molasses—Beter Self Messylve.
	Wagon Box Strap Bolts— 10 in, long by 7-16 at screw end, \$\mathbb{P}\$ set of 8 bolts55c 12 "	Gates—Molasses—Patent Self-Measuring
A MA	Wagon Box Strap Bules— 10 in, long by 7-16 at screw end, \$\mathbb{P}\$ set of 8 bolts55c 12	Wrought Strap and T
	5 cts. 38 set for each additional inch over 14 inch. by %. All lengths made.	Fancy and Helmet. Sew list net Hammers Maydole to net
* * *	Wagon Box Rods, narrow track each	Hatchets—Blood's
t	Wt. Iron Bolster Plates, 2% in. wide, per set60c	Hooks—Belt
N. N.	5 cts. 38 set for each additional inch over 14 inch. by %. All lengths made. Wagon Box Rods, narrow track each 18c Wagon Box Rods, wide track, each 9c Single Tree Irons, per set of four pieces 8c Wt. Iron Bolster Plates, 2% in wide, per set 6c "	Kettles—Brass V 10, 53 c Enameled
××	Wrought rub irons	Funnel, Black and Galvanized. Bew list not Fancy and Helmet. Bow list not Hammers—Maydole*s. not Yerkes & Pfumb's dis 5 @ 10% Hatchets—Blood's. act @ 5 % Hooks and Staples—Wrought. Stable @ 60% Hooks—Belt. dis 45&10 % Hasps and Staples—Wrought dis 50&10% Sad Irons. P 35 %c Kettles—Brass. P 35 %c Kettles—Brass. Dis 20% Knives, Drawing—Oval Me. 1. dis 60 @ 60 & 5 Rasor Blade. dis 37% &200 %

Vrought Hammer Straps, heavy pattern. 16c each light pattern. 13%c each	Lant
tay Chain Hooks	"R
Double or Center Clips, fighteach 100	Lock
Brake Ratchets, Hammer Straps, Rub Irons, Stay Chalu Hooks and Clips, in lots of 50 set. 15 4 dis	Macl
Chain Hooks and Clips, in lots of 50 set 15 % dis. Vagon Box Staples, 1½ to 3½ in. to clinch per 1000, \$16 50 net vagon Box Staples, Box Iron, to rivet on, per 1000, \$16 50 net veck Yoke Eyes, with ½ inch rings. 5½ c net vagon Rivets, ex. large, oval and sleeple head, ½ in. dism., all lengths, ½ b	Do
Vagon Box Staples, Box Iron, to rivet on, per 1000, \$11 50 net	Mille
Neck Yoke Eyes, with % inch rings 8%c net	Nail
Vagon Rivets, ex. large, oval and steeple head, 34 in. dism., all lengths, \$20	Cle
Wagon Rivet, 3-16 inch diam., all lengths 133cc Wagon Rivets & nails in 5 lb paper boxes, P lb ex lc	He
Vagon and Hinge Nails, F B net	0
Fongue Plates Weck Yoke Plates W 15 13c	Pack Pend
Tongue Cap Iron, 1%, 2 and 2% in. wide, same price 2 D as Band Iron.	Ca
5-16 in., 13½c; ¼ in., 14½c.	Pain Rive Co
Nails, Brads, Spikes, etc,	Rop
od to od nails, fence, and brads	Stap
0d to 6ºd nails, fence, and brads. \$5 50 sd and 9d nails, fence and brads. 5 75 dd and 7d nails, fence and brads. 6 00 dd and 5d nails, fence and brads. 6 25 dd nails, fence and brads. 7 06 sd nails, fence and brads. 7 06 sd nails, fence and brads 8 25 6 th nails, fence and brads 8 25	Stra
robacco.	Squ
	Sho
FINE BLUED. 88 25 15 inch \$6 25	Saw
-8	Scal
0d to 50tl	She
CASING. 1 inch. 8 00 0d to 50d	Too
Cut spikes, all sizes	Tac Vise Wre
Cut boat spikes 6 25 Clinch nails, all sizes 6 25	T
TERMS.—Sixty day's time, or two per cent discount if remitted within ten days from date of invoice. Prices subject to changes in market without	Wan
LENGTH OF NAILS.	Ci
2d, 1 inch; 3d, 1% inch; 4d, 1% inch; 5d, 1% inch; 6d, 2% inch; 8d, 2% inch; 9d, 2%	10x1
2d, 1 Inch; 3d, 1¾ inch; 4d, 1¾ inch; 5d, 1¾ inch; id, 2 inch; 7d, 2¾ inch; 8d, 2½ inch; 9d, 2¾ inch; 10d, 3 inch; 12d, 3¾ inch; 34, inch; 50d, 4 inch; 50d, 4½ inch; 6dd, 6 inch.	12x1
	14x5 14x5 20x5
BOSTON.	A Pig B
Corrected by Fuller, Dana & Fitz, 110 North St.,	Sole
Boston, Importers and Commission Merchants. Tin Plates.	She
Tin Plates. I. C. Charcoal per box @ 14 00	Iron
Metals.	T
Pig Tin, Banca, goldper lb. 871sc Straits, 313c	Cop
Copper, Sheathing 43c	B B B
Copper Bolt	She
" Ingot " 87c	NN
Pig Tin, Banca, gold. per lb. 87½c Straits. " 31½c Copper, Sheathing. " 43c Copper Bolt. " 45c Braziers. " 45c " Ingot. 37c " Old. " 634c " Sheet and Pipe. 945c " Old. 634c Spelter, Silesian, gold. " 734c American. " 654c Zinc, Sheet. 10%c	NA
Spelter, Silesian, gold	G
Zinc, Sheet	G
"Knglish" 7c @ 7%c	1
"Galvanized	-
Norway Bar Iron, Flats, " 135 00 @ 145 00	
Norway R'd, 2 in. to 34 in. gld.pr.ton 140 00 @	Jen
" 5-16 to 16 in." 160 00 6	Coo
" Benzon " 162 50 @	Sne
Sheet Iron, Russia, gold	Am
Scotch Fig 1ron, 52 00 66 55 00 American " 45 00 66 52 00 Wrought Scrap Iron, 42 00 64 50 00	Hu
Steel. English Tool Steel, goldper lb. 16c.	Lip
" Machinery Steel, gold " 10c.	,0
American Tool 10c.	Jef
American Tool 166. " Machinery " 11c. Bessemer Stèel 8% @ 9% c German " per lb. 10% c	Rec
American Tool 16c. " Machinery " 11c. Bessemer Steel 8½ @ 9½ c German " per lb. 10½ c. Spring Steel "9c. Tire " 8c.	Red Ker Boy
American Tool 16c.	Red Ker Boy Car Cas
Steel	Red Ker Boy Car Cas Wr
BUFFALO.	Cas
BUFFALO. Reported by Mesore, Status Shapard & Co. Jan. 7d, 1873.	Cas
BUFFALO. Reported by Messre. Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Block's	Cas
BUFFALO Reported by Messrs. Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Blood's	Cas
BUFFALO Reported by Messrs. Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$13 50 @ 14 50 Augers—C. S. cut. \$16 30 % Bits, Auger—Pierce's \$25 % Jennings' dis 10 % Bells, Cow—Yaw's Genuine net	Cas
BUFFALO Reported by Messrs. Stdney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's	Cas ** ** Wr
BUFFALO Reported by Messre, Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$12 50 @ 14 50 Augers—C. S. cut. \$18 30 % Bits, Auger—Pierce's \$25 % Jennings' dis 10 % Bells, Cow—Yaw's Genuine net Bells, Hand \$15 60 \$50 & 10 % Moulders' dis 15 @ 20 % Moulders' dis 10 % Bolts—Carriage and Tirs, dis nock dis 60 & 10 %	Cas
BUFFALO Reported by Messre, Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$12 50 @ 14 50 Augers—C. S. cut. \$18 30 % Bits, Auger—Pierce's \$25 % Jennings' dis 10 % Bells, Cow—Yaw's Genuine net Bells, Hand \$15 60 \$50 & 10 % Moulders' dis 15 @ 20 % Moulders' dis 10 % Bolts—Carriage and Tirs, dis nock dis 60 & 10 %	Cas
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BUFFALO Reported by Messre, Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$12 50 @ 14 50 Augers—C. S. cut. \$18 30 % Bits, Auger—Pierce's \$25 % Jennings' dis 10 % Bells, Cow—Yaw's Genuine net Bells, Hand \$15 60 \$50 & 10 % Moulders' dis 15 @ 20 % Moulders' dis 10 % Bolts—Carriage and Tirs, dis nock dis 60 & 10 %	Cas
BUFFALO Reported by Messre, Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$12 50 @ 14 50 Augers—C. S. cut. \$18 30 % Bits, Auger—Pierce's \$25 % Jennings' dis 10 % Bells, Cow—Yaw's Genuine net Bells, Hand \$15 60 \$50 & 10 % Moulders' dis 15 @ 20 % Moulders' dis 10 % Bolts—Carriage and Tirs, dis nock dis 60 & 10 %	Cas
BUFFALO Reported by Messre, Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$12 50 @ 14 50 Augers—C. S. cut. \$18 30 % Bits, Auger—Pierce's \$25 % Jennings' dis 10 % Bells, Cow—Yaw's Genuine net Bells, Hand \$15 60 \$50 & 10 % Moulders' dis 15 @ 20 % Moulders' dis 10 % Bolts—Carriage and Tirs, dis nock dis 60 & 10 %	Cas
BUFFALO Reported by Messrs. Sidney Shapard & Co. Jan. 7d, 1873. Axes, Chopping—Bloed's \$13 50 @ 14 80 Augers—C. S. cut. \$18 50 @ 14 80 Augers—C. S. cut. \$18 50 @ 14 80 Bits, Auger—Pierce's \$25 gennings'. \$18 10 gens. \$18 10	Cas Wr Wr Gai Par Irol But Wit
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### Part	Cas wr Wr Gan Par Iron Bra Por Iron But With Side Side Side Side Side Side Side Side
### Part	Cas wr Wr Gan Par Iron Bra Por Iron But With Side Side Side Side Side Side Side Side
### Part	Cas wr Wr Gan Par Iron Bra Por Iron But With Side Side Side Side Side Side Side Side
### Part	Cas wr Wr Gan Par Iron Bra Por Iron But With Side Side Side Side Side Side Side Side
### Part	Cas wr Wr Gan Par Iron Bra Por Iron But With Side Side Side Side Side Side Side Side
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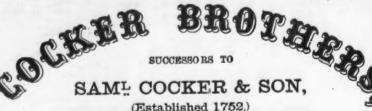
·	21
Lanterns"Peerlese". No. 1 5 10	Amoskear Shingling, No. 1.
"Radiant" 75 100 150 175 18 doz \$18:13 18:13 22:50 22:50 dis 20 \$	No. 2
Knobs—Door, R. & E. Mfg. Codis 20 @ 25 % Locks—Door, R. & E. Mfg. Codis 20 @ 25 %	Claw, No. 1
Machines—Apple Paring, Turn Table \$8:50 % doz	Lath, No. 1 7 50
Doweling, Merchant's, No. 1	" Solid Steel " 12 00
Mills, Coffee Box and Slide, commondis 10 % Box Union and Eagle	Strap and Tdis 5 % Screw Hook and Strap, 8 to 12 innet, 10c % ib
Swift's Patent die 10 % "Champion" die 20 % Nails—Cut Chosspoake \$8.00 rutus	Hook and Eye Hirges net 12c @ 16c @ 76
Clout and Finishing	Strap and T dis 5 Strap and T dis 5 Strap and T dis 5 Strap Strap Sto 12 in net, 16c 2 ft dis 5 dis
Horse, AusableNo. 5 6 7 8 9 10 1	Northwestern, 8d24c
" Clinton No. 6 7 8 9 10 23 21 20 19 18c	Borse Nails 24c 24 24 24 24 24 24 2
Mills, Coffee -Box and Slide, common dis 10 %	Enameled
Case lots	Locks AND KNOBS. Norwalk Loc's Co. dis 20
Hivets—Iron, Black and Timpeddis 20 @ 25 % Copper	Ragle dis 15 5 American Pad Locks dis 25 5 Contracted Lock Co. dis 10 5
Rules—Boxwood and Ivory dis 40&10 % Staples—Blind, Boardman's Pat., 1/2 & 54 19 10 37c	Haven's Patent net lie
Skates—White's	Haven's Palent net lis Hale's dls 0 Woodruff net lis Stowe's Sausage Stuffers net list
" by the case dis 20 % Plated Rogers' A No. 1 dis 25&5 %	MOLASSES GATES.
Squares—Steel and Iron	Stebbin's Patent dis 40 % Enterprise dis 5 %
Dennison net Sawa-Henry Disston & Sons dis 5 Sawa- Physics Sons dis 5 Sawa- Physics Sons dis 5	Washita No. 1
Case lots. 30 40 50c. per 100 Case lots. dls 29 /2 Paint—White Lead, U. S. Gov't. b. 9 /3 c. Rivets—Irou, Black and Timed. dls 20 /2 25 /2 Copper 5 /6 10 /8 Rope—Manila, ½ inch and larger \$\text{Political Boardman's Pat.}\$\text{/4}\$\text{\chi_{\text{Cop}}} \text{\chi_{\text{Cop}}} \chi_{\t	Washita No. 1. net 35c P P "Silps net 65c " Hindostan No. 1 net 9c "Axe, net 10c "Silps net 10c "Blips net 10c
Shears—Seymour's	Picks AND MAITOCKS. Picks, Railroad, Axe Finish
Traps, Steel—Newhouse	Cosl. Axe Fluish. "10 (0 Mattocks, L. C., Axe Fluish "16 (0 S. C." "15 50) Grub Hoes, Axe Fluish, No. 2 "12 00
Vises—Parallel, Buffalodis 15 % Wrenches—Coes' genuinedis 25 % Upon't Imitationdis 45 %	Grub Hoes, Axe Finish, No. 2 43 12 00
Tafts' Pattern dis 62½ &10 5 Ware—French, Tinned and Iron dis 90 2	Ohio Tool Co. Benchdis 10 % Sc otadis 15 %
Shears - Seymour's dis 50 % Tools - Tinmen's dis 17% % Tools - Tinmen's dis 17% % Tacks - Steel - Newhouse dis 17% % Tacks - Half Weight Am. Iron dis 70 @ 70%7 % % Viese - Parallel, Buffalo dis 15 % Wrenches - Coes' genuine dis 25 % Coes' Imitation dis 45 & 10 % Tafts' Pattern dis 62% & 10 % Ware - French Tinned and Iron dis 62% & 10 % Stamped and Japanned net Cast Iron Hollow dis 20@30 % dis 20.	Sc ots.
METALS. Tin Plates, Charcoal IC.	Plane Irons, Butcher's dis 50 %
10x14 \$13 25 12x12 13 75 12\6 x17 12 6 77	RIVETS. dis 10 @ 15 % Tinned. dis 10 @ 15 % Copper, No. 7. net, \$\psi\$ b, &c
14x20 14 25 14x20 terne 12 00	Stanley Rule and Level Co
Add for each X 2 500 Pig Tin—Straits 40 50 41c	Stanley Rule and Level Co
Banca. No. 1 No. 2 50 lbs. dednet 50	Best A'No. 1 9 D, net, 5%c
Tin Plates, Charcoal IC.	Best A'No. 1
Iron Wire—Bright and annealed dis 10 @ 20 % Coppered	Champion
Tinned Broom Nos. 20 to 22 % 10 16% Copper—Sheathing 14@18 qz % 15 43c	Hopkins & Dickinson dis. 10 % Judd's Patent dis. 10 % Corbin's Patent dis. 10 % dis. 10 %
Planished	Clark's '
Braziers' Sheets	H. Dieston & Sons dis 5 % Champion X Cut B foot, net, 60e M. A. & Co. X Cut 50c
Nos. 10 to 14	SCREWS. American Screw Co.—Hrons
Nos. 25 & 26	American Screw Co.—Iron
Gen. Russia, No. 1 stalged, 14½c 12½c	Ames' Black Shovels AND SPADES, "P doz, \$15 00 "Polished "16 00
Am. Russin. 14% c 12% c	Polished 16 00 16 00 17 00 18 00 1
CHICAGO.	Crane's Black " 12 00 " 13 60
Reported by Markley, Alling & Co., Dec. 1872.	B. S. D. H. Rd. Pt. 13 50
AUGERS AND BITS.	" Patent " " 18 00
Ives', extra C. S	Alling
Cooks dis 25 % Snell's dis 7½ %	Alling Steel Polished, No. 2
Snell's Car Bitsnet list AXES. Amoskeag Yankee	Crane's Black 12 50
" Crescent 14 00	No. 6
Kennebeck Yankee 12 00	No. 10
Lippincott "	No. 6
" Beveled " 13 00 Jefford's Silver Steel " 18 00 Red Warrior, Beveld " 14 00	Crane's Black Coal, No. 4
Kennebeck, Handled " 15 00	Preston, Black Scoops No. 1
Carriage and Tiredis 50&20 \$	" Half Pol. Scoops No. 1 13 00
Boy's, Handled	Preston, Black Scoops No. 1. 9 doz \$12 00 " " " 3 " 13 50 " Half Pol. Scoops No. 1 " 13 00 " " " 3 " 14 00 Lippincott, Half Pol. No. 2 " 16 00 WELNCHES.
Cast Fast Joint, Narrow	WE: NCHES. dis 60 % Coe's Imitation dis 45 % Coe's Genuine dis 25 %
" Loose Joint	Coe's Genuine dis 45 %
" Japanned dis 25 % " Silver Tipped dis 25 % " Silver Tipped dis 25 %	WRINGERS 70 doz \$72 00 Universal 72 00 Mead's 75 00 75 00 76 00 77 0
" " " " " " " " " " " " " " " " " " "	the course of th
" Table	Flat Bars
" Loose Pin. dis 15 % " Table. net list Brass. dis 15 % Garretson's Blind Butts, Wood doz sets \$2 00 Parker's " Wood doz sets 2 25	Heavy Bands
" Brickdoz sets 3 25	From. (Pittsburgh classifications.) Flat Bars.
Iron Plate	Horse Shoe
For Wheel Bed	140. 40 00 13
Iron Wheel Bed. dis 20 %	No. 27 to 26
Witherby Socket Framing	No. 27 7.4 10d to 60d. per keg\$5 62½ 8d per keg\$7 12½ 8d and 9d 5 73½ 10d 6 87½ 6d and 7d 6 12½ 12d 6 87½ 4d and 5d 6 87½ 2d 8 37½ 3d 7 12½ 3d fine 8 37½ 3d fine.
COFFEE MILLS.	4d and 5d 6 87% 2d 8 37%
" 108 " 5 25	6 071/ Clut anilyon # 671/
" 102 " 7 5" " 107 Britannia	8d 6 62½ Barrel— 10d 6 37½ ½ inch 8 37½ 19d 6 37½ ½ inch 7 87½
" 35 " 13 00 " 75 Cast Steel 11 00	8d 6 62% Barrel- 10d 687% 76 inch 887% 12d 687% 1 inch 787% 16d 687% 1 inch 787% 16d 687% 14 inch 712% Finishing— 762% 136 inch 687% 6d 762% 136 inch 687%
"107 Britannia" 7 50 "106 " 9 25 "25 Union 11 00 "35 " 13 00 "75 Cast Steel 11 00 "85 " 18 00 Stde 50 47 55 "60 57 75	Northwestern Nos. 5 6 7 8 9 10
40.00	1 A 1 20 20 20 20
** 90. 15 Union	Bcotch-Gartsherrie\$ @ 64 00
American Table	Coltness
Torry.	Egilaton
Boon's 5 00 DBAWING KNIVES. 41s 50&18 4	Calder. 68 60 Dalmellington. 66 3 0 Langloan. 66 2 00
Ohio Tool Co net list	Langloan
Torry. \$\psi\$ doz \$7 50 \\ Rubber \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Govan
	% %
Chency,	Chileren N
Extra Axe	Chicago, No. 1
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Extra Axc. \$\partial \text{doz} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Chicago, No. 1

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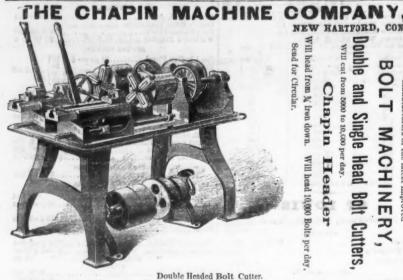


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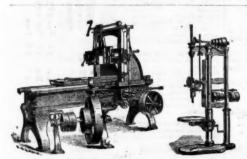
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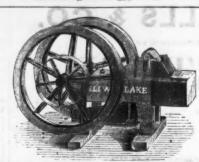


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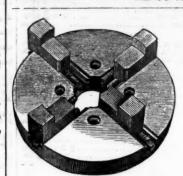


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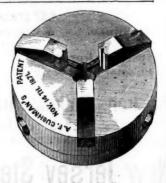
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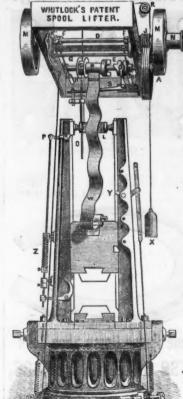
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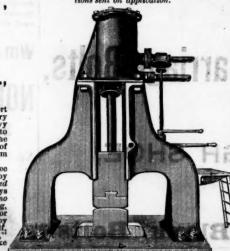
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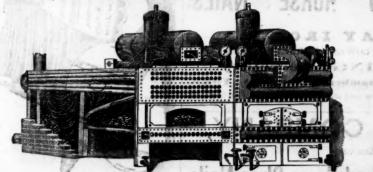
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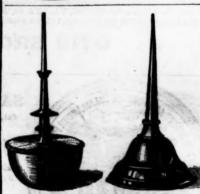
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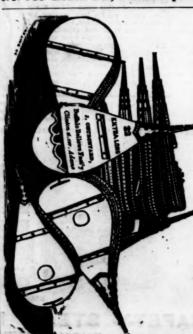
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